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Los Alamos National Laboratory

Integrated Safety Management

Approved: _____

John C. Browne, Director
Los Alamos National Laboratory
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Contents

Figures and Tables

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Acronyms

ALD—Associate Laboratory Director
ALO—Albuquerque Operations Office
BUS—Business Operations Division
CCB—Change Control Board
CFR—Code of Federal Regulations
DD—division director
DEAR—Department Of Energy Acquisition Regulations
DIR—The LANL Director's Office. The Laboratory Director is the senior Laboratory official.
DLD—Deputy Laboratory Director
DNFSB—Defense Nuclear Facilities Safety Board
DOE—Department of Energy
E—Environmental Science and Waste Technologies Division
EDS—Employee Development System
ESH—Environment, Safety, and Health Division
ES&H (environment, safety, and health—Used throughout this document to refer to all activities that are included in the term safety: environment, safety, health, waste minimization, and pollution prevention.
FMWC—facility management work control
FWO—Facilities & Waste Operations Division
FM (facility manager—An individual appointed by an owing division director to manage an FMU.
FMS—Facility Management Services
FMU (facility management unit)—The Laboratory is subdivided into facility management units, based primarily on locale, to provide more effective safety management and support services.
FSAR (final safety analysis report)—Required for DOE nuclear facilities.
FSP—facility safety plan
G&A (general and administrative)—The principal overhead, indirect cost account funding of Laboratory support activities.
HCP—hazard control plan
HR—Human Resources Division
ISM (integrated safety management)—The principal safety and environmental management framework for LANL and DOE.
JCNNM (Johnson Controls Northern New Mexico, Incorporated) —LANL's primary support services contractor.
LAAO (Los Alamos Area Office) —the DOE's area office.
Laboratory—Los Alamos National Laboratory
LANL (Los Alamos National Laboratory)—A DOE laboratory managed and operated by the University of California.
LC—Office of Laboratory Counsel
LIG (Laboratory implementation guidance)—Nonmandatory guidance on how to meet Laboratory requirements.
LIR (Laboratory implementation requirement)—Mandatory requirements for implementing the array of Laboratory performance requirements.
Los Alamos—Los Alamos National Laboratory
LPR (Laboratory performance requirement)—A Labwide requirement that governs the conduct of specific types of work.

Acronyms (cont.)

LSRP—Laboratory Standards Requirements Project
M&O (management and operations)—The type of contract under which the University of California operates LANL for DOE.
N&S—necessary and sufficient
NMED—New Mexico Environmental Department
OIC (Office of Institutional Coordination)—Offices assigned to coordinate Labwide response to external requirements.
OJT—on-the-job training
OSHA—Occupational Safety and Health Act
OWG (Operations Working Group)—This group is chaired by the Deputy Laboratory Director for Operations and includes selected division directors, the ISM program manager, and representatives from DOE/LAAO, JCNNM, PTLA, UC, and the FMS. It focuses on safety and operational issues of the Laboratory.
P&T—packaging and transportation
POC (point of contact)—an individual appointed by a division, program, or office director to act of their behalf to disseminate new requirements, coordinate responses, and self-report for the organization
PTLA (Protection Technology of Los Alamos)—The primary security services contractor to LANL.
RR—roles and responsibilities
SAD (safety analysis document) —A document required by DOE for certain classes of facilities.
SAR—safety analysis report
SFM—safety function manager
SR (surveillance requirement)—Monitoring activities required in nuclear and high-hazard facilities.
TA (technical area)—A geographic subdivision of the Laboratory.
TIM—training implementation matrices
TSR (technical safety requirement)—Operating conditions required in nuclear and high-hazard facilities.
TRU—transuranic (waste)
UC (University of California)—The institution that operates LANL for DOE.
USQD (unreviewed safety question determination) —A process that addresses safety issues at specified nuclear facilities.
WSB—work breakdown structure
WFO—work for others
WSS (work smart standards)—The necessary and sufficient set of standards to meet performance expectations and objectives for providing adequate protection to workers, the public, and the environment.
Web (world-wide web)—A computer-based information resource.

ES&H Policy

We will never compromise safety or security for operational needs.

We are committed to achieving excellence in environment, safety, health, and security performance.

In order to meet the moral imperative not to injure people, the environment, or compromise the safety of our nation while accomplishing our mission, and the business imperative to meet the environment, safety, health, and security requirements of the contract between the University of California and the Department of Energy, the employees, contractors, and guests of the Los Alamos National Laboratory will strive to have:

- **ZERO injuries and illnesses on the job**
- **ZERO safeguards and security violations**
- **ZERO injuries and illnesses off the job**
- **ZERO environmental incidents**
- **ZERO ethics incidents**
- **ZERO people mistreatment incidents**

Los Alamos National Laboratory
January 20, 1999

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Preface

Integrated safety management (ISM) is official Laboratory policy that is to be followed by the entire workforce. ISM is the single ES&H management system that sets environment, safety, and health policy for all people performing work at the Los Alamos National Laboratory (LANL), irrespective of employer. ISM requires that all work and all workers must meet the safety and environmental responsibility requirements defined by the Laboratory requirements system, as documented in appropriate Laboratory performance requirements (LPRs), and Laboratory implementation requirements (LIRs), and any supplemental requirements defined for a specific facility or activity.

This is an updated version of LA-UR-98-328, "Integrated Safety Management," which was approved by the Laboratory Director on November 24, 1996, and accepted by the Department of Energy (DOE) on December 2, 1996. This document is the latest version of the August 23, 1999 update.

This update incorporates information and experience gained during the initial years of ISM implementation at LANL. It satisfies ISM implementation milestone #54A, "Review Annually."

A new contract was signed between the University of California (UC) and the DOE for management of this Laboratory subsequent to the acceptance of the first ISM description document. This update satisfies the requirements for a documented safety management system found in the University of California Contract between the United States of America and the Regents of the University of California for management of the Los Alamos National Laboratory, Supplemental Agreement to Contract W-7405-ENG-36 effective October 1, 1997, clauses 5.14, "Special Assessments," and 6.7 - DEAR 970.5204-2, "Integration of Environment, Safety, and Health Into Planning and Execution." In addition, this document has been revised to provide additional focus on environmental responsibility.

Changes to this document and the associated ISM Continuous Improvement Plan are subject to the approval of the ISM Change Control Board (CCB), comprising DOE, the Laboratory, and the UC Office of the President. The charter of the CCB is reproduced in Appendix D of this document.

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1.0 Introduction to ISM

ISM is a system for performing work safely and in an environmentally responsible manner. The term "integrated" is used to indicate that the safety and environmental management system is a normal and natural element of the performance of work. Safety, protection of the environment, and compliance with ES&H (environment, safety, and health) laws and regulations are not just a workplace addition—it is how we do business. ISM is the way that we meet (1) the moral commitment not to injure people or the environment, and (2) the business imperative to meet the safety and environmental requirements of the UC-DOE contract for management and operation of the Los Alamos National Laboratory (LANL, or Laboratory).

DOE Policy P450.1, Environment, Safety, and Health Policy for the Department of Energy Complex, sets as the hallmark and highest priority daily excellence in the protection of the worker, the public, and the environment for the accomplishment of the DOE's and its contractor's mission. ISM is a comprehensive, systematic approach for setting, implementing, and sustaining the execution of safety and environmental expectations for the Laboratory. This document is a description of ISM and how it supports Laboratory work to accomplish its mission cost effectively, while striving for an injury-free workplace, minimizing waste streams, and avoiding unnecessary adverse impacts to the environment from its operations. ISM provides a framework that supports workers in fulfilling their safety and environmental responsibilities. ISM is the system that LANL uses to implement DOE Policy P450.1.

A worker-based safety culture is a total safety culture. This is described succinctly by E. Scott Geller, wherein:

- *Everyone feels responsible for safety and does something about it on a daily basis.*
- *People go beyond the call of duty to identify unsafe conditions and at risk behaviors, and they intervene to correct them.*
- *Safe work practices are supported intermittently with rewarding feedback from both peers and managers.*
- *People "actively care" continuously for the safety of themselves and others.*
- *Safety is not considered a priority that can be conveniently shifted depending on the demands of the situation; rather safety is considered a value linked with every priority of a given situation.*

From *Working Safe: How to Help People Actively Care for Health and Safety*, E. Scott Geller (Chilton Book Company, 1996).

ISM at Los Alamos embodies these cultural norms in its policies, expectations, requirements, systems, and processes. The Laboratory is striving to achieve these norms through implementation of ISM.

The Laboratory is implementing a similar management system, Integrated Safeguards and Security Management (ISSM), for the sustained execution of security expectations at the Laboratory. ISM and ISSM are complementary management systems based upon the same principles and core functions. When possible the infrastructures are shared such as the processes for creating, issuing, and communicating requirements and expectations. Unified management of work

planning and control will achieve cost-effective operational excellence and enhance ES&H and security at the Laboratory.

1.1. Terms of Reference

The following terms are used throughout this document and are defined here for purposes of this document:

- The word "safety," when used generically, encompasses all aspects of environment, safety, and health, including regulatory requirements, pollution prevention, and waste minimization.
- "Work" is defined broadly to include all LANL activities undertaken by the workforce, including work-for-others (WFO) activities. *Activities undertaken during emergencies should be done as safely as possible, consistent with the nature of the emergency. Emergency actions may be taken outside of the documented requirements of ISM.*
- "Worker" includes all UC employees, subcontractors to UC employed at the Laboratory, and all visitors.
- "Hazards" refer to worker safety and heath hazards and hazards to the environment, and all else the Laboratory defines as a hazard through the ISM System. Hazards to the environment include the potential to violate environmental laws or regulations and the potential for damage to the environment.
- "Controls" are a prioritized set of mechanisms to prevent a hazard from causing harm to workers, the public, or the environment. The prioritized set includes hazard elimination, hazard segregation through procedural restrictions, hazard containment by physical barriers, and human isolation from hazards by protective equipment.

1.2. Worker and Management Responsibility

Sustained execution of ISM at LANL will result in a worker-based safety system. A worker-based system is built on the premise that everyone is a worker when it comes to ES&H. Depending upon job assignments, however, we have different roles and responsibilities.

While management provides leadership and enables the workforce, the involvement of all workers (managers, supervisors, subcontractors, safety professionals, workers "on-the floor," and others) in identifying and resolving ES&H concerns, in the decision-making processes, in the implementation of initiatives, and in providing feedback about ES&H effectiveness is crucial to success. ISM expectations and processes enable workers to apply their first-hand knowledge and skills in performing work to the protection of themselves, the public, and the environment. Ownership by the entire workforce of all ISM expectations and processes is required for the sustained execution of ISM.

Line management is responsible for safety. To fulfill this responsibility, management provides leadership by making decisions regarding the institution's values, direction, and programs. In addition, line management establishes and manages ES&H initiatives, determines and communicates the desired end-state, allocates resources, assesses performance, and provides methods for accountability.

To effectively fulfill their role, managers throughout the institution must have shared values and common goals. They must behave in ways that demonstrate to the entire workforce their commitment to these values and goals. Managers need to be accessible to the workforce and responsive to their concerns. Management access to relevant ES&H information allows analysis, understanding, and actions to be taken for the continual improvement of work practices and processes. When decisions crosscut the institution or multiple organizations, forums need to be provided for input of information, discussion, conflict resolution, and, when appropriate, participation in decision-making.

Worker involvement is characterized by worker participation in identifying and analyzing the hazards of their work, in developing and implementing the appropriate controls, and in resolving conflicting priorities that arise. This involvement must occur at all three ISM levels: institution, facility, and activity. In addition to seeking, promoting, and rewarding meaningful worker involvement, managers need to mentor workers to develop ES&H responsible behaviors for there to be meaningful involvement. Areas of worker involvement that have a high ratio of positive return-to-time spent are (1) investigation and development of corrective actions for incidents or occurrences, and (2) workplace inspections or self-assessments.

Worker involvement and ownership of ES&H includes a robust stop work authority activated whenever a worker perceives a situation believed to jeopardize workers, the public, or the environment. Managers and supervisors support the use of this authority without hint of reluctance or retribution. LANL has a stand-alone stop work and restart LIR as part of its formal requirements system.

Processes are provided for workers to identify and help resolve ES&H problems, as well as to contribute to continued improvement of ISM processes and activities. Such forums at the Laboratory include the "grass-root" volunteers; formal worker safety committees; town meetings with managers; direct communication with managers during management walk-around activities, performance appraisal activities, and day-to-day interactions on the work floor; the Safety Concern Program; and electronic venues such as ISM@lanl.gov and future@lanl.gov.

Positive recognition and endorsement of workers by their immediate supervisors for the contributions the workers make are key to having involved workers. As part of the Laboratory's improvement, the Performance Management System (performance appraisal process) has been modified to include ES&H performance for all supervisors. Performance to ES&H expectations has been and remains part of the performance appraisal and accountability processes.

1.3. Institutional ISM Responsibility

The Laboratory Director has charged the Operations Working Group (OWG) with establishing, and maintaining ISM. It focuses on safety, environmental, and operational issues for the Laboratory. The OWG is chaired by the Deputy Laboratory Director (DLD) for Operations and includes selected DDs, the ISM Program Manager, and representatives from DOE Los Alamos Area Office (DOE/LAAO), Johnson Controls Northern New Mexico (JCNNM), Protection Technologies Los Alamos (PTLA), UC, and Facility Management Services (FMS).

The ISM Program Manager reports to the Laboratory Director through the DLD for Operations and guides and tracks the institutional implementation and sustained execution of ISM.

The Environment, Safety, and Health (ESH) Division supports the ISM Program Manager and the workforce by coordinating and facilitating the implementation and sustained execution of ISM throughout the Laboratory.

All Laboratory employees implement required ISM elements and provide input to continually improve ISM. Comments on this document or ISM can be submitted to the ISM Program Office (ISM@lanl.gov).

1.4. Communications

Sustained integration of management systems requires teamwork between and mutual understanding among all workers and managers. In turn, teamwork and mutual understanding depend greatly upon effective communication and interactions throughout the organization. Workers must have the means to improve the ES&H processes and requirements by communicating problems and solutions to their managers, and managers must be able to communicate decisions and directions to the workforce. LANL employs a variety of formal and informal communication methods.

Vertical communications among different levels in the safety- and environment-responsible line-management chain must be effective two-way communication. Two-way communication means that information is passed up and down the hierarchy without distorting the intent or content. Lateral communication between members of a single organization and between different organizations promotes the sharing of experience, hazard recognition, and solutions to problems. To be effective, lateral communication also must be two way. The Laboratory is committed to continually improving two-way communication. Many of the operating divisions are using nested safety committees where there is representation from safety committees at each level of the organization on higher level safety committees as a way of meeting their commitment to improve safety and environmental communication. (See Sec. 5.0. for further descriptions of communications.)

2.0. ISM Description

This section describes objectives, guiding principles, core functions, tailoring of expectations to work and hazards, and training that are the framework of ISM.

2.1. Laboratory ES&H Goal

The Laboratory's ES&H goal is to accomplish its mission cost effectively, while striving for an injury-free workplace, minimizing waste streams, and avoiding unnecessary adverse impacts to the environment from its operations. Throughout the Laboratory, the goal of ISM is the systematic integration of ES&H into work practices at all levels. Safety and environmental responsibility involve every worker. Management of ES&H functions and activities is an integral, visible part of the Laboratory's work-planning and work-execution processes.

Just as we strive for an injury-free workplace, we also strive for "Zero Environmental Incidents," which means complying with all applicable environmental laws and regulations; adopting practicable proactive approaches to achieve environmental excellence (e.g., to minimize waste generation, waste-water discharges, air emissions, ecological impacts, cultural impacts, etc.); preventing unnecessary adverse environmental impacts; and enhancing environmental protection. We can all identify personally with zero injuries, in the case of the environment motivation is more difficult. To guide and motivate our progress, we establish environmental objectives that are overall institutional goals for environmental performance (e.g., Appendix F Performance Measures, Top 20 list of environmental issues, annual ESH management plan, and pollution prevention activities). Within the institution, we establish environmental targets that are specific, quantitative levels of performance that relate to achieving environmental objectives for the institution, a facility, or an activity (Appendix F Performance Measures).

2.2. ISM Guiding Principles

The ISM guiding principles are architectural principles that define how the Laboratory is structured to achieve an injury-free, healthy, and environmentally responsible workplace. Principles 1 through 7 are substantially the same as those found in the UC-DOE contract requirement on the integration of ES&H into the planning and execution of work (Contract Clause 6.7-DEAR 970.5204-2, taken from 48CFR 970.5204-2). LANL's first guiding principle has been added to reinforce the importance of line management commitment and worker involvement as a foundation for all other guiding principles. The eight guiding principles (see below) are the basis for the Los Alamos integrated safety management system**.**

Laboratory workers implement these guiding principles by working safely in a manner that ensures adequate protection for other employees, the public, and the environment. They use a degree of care that is commensurate with the work-associated hazards and are personally accountable for performing work safely and in an environmentally responsible manner.

Eight Guiding Principles

LANL's first guiding principle: ***Management Commitment and Worker Involvement***
ISM is an employee-based safety and environmental management system. Managers are visibly committed to the implementation and sustained execution of all elements of the system, and workers exhibit continual involvement in the system by understanding and using ISM elements in their work.

1. Line Management Safety and Environmental Responsibility. Line management is responsible for the protection of workers, the public, and the environment. Every member of the workforce shares this responsibility, which extends in an unbroken chain from external sponsors through the Laboratory Director to the workers. All UC and subcontractor employees and managers, supervising or performing work and all visitors are in a responsible line-management chain for safety and environmental responsibility. Throughout this line management chain, safety and environmental responsibility are integral to decisions relating to the performance of work, including resource allocation, planning, scheduling, and coordination.

2. Clear Roles. The Laboratory has established and maintains clear and unambiguous lines of authority, responsibility, and accountability at all organizational levels. ES&H roles and responsibilities are communicated so that everyone understands their individual and organizational roles relating to safety and the environment.

3. Competency Commensurate with Responsibilities. Every member of the workforce possesses the experience, knowledge, skills, and abilities necessary to discharge his or her responsibilities. Supervisors ensure that workers are competent to perform the work safely and in an environmentally responsible manner, including compliance with all applicable ES&H laws and regulations.

4. Balanced Priorities. Management effectively allocates resources to address ES&H, programmatic, and operational considerations. No work will be performed unless it can be performed safely and in an environmentally responsible manner, and in full compliance with applicable laws and regulations. Whenever activities are planned and performed, adequate protection of workers, the public, and the environment is provided. Work planning and resource allocation ensure through balanced priorities that the safety of any work is adequate, value added, and reasonable.

5. Identified Safety and Environmental Standards and Requirements. Before work is performed, the associated hazards are evaluated, and agreed-upon ES&H standards, requirements, or controls (i.e., expectations) are established, which, when properly implemented, provide adequate assurance that the workers, the public, and the environment are protected from adverse consequences.

6. Work-Tailored Hazard Controls. Administrative and engineering controls and other expectations to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis is on designing the work or controls to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures.

7. Authorized Operation. The conditions and agreements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon. Most operations are authorized under the Prime Management and Operations

Contract between UC and the DOE. Some operations are authorized under activity- and facility-specific authorization agreements between the Laboratory and DOE.

2.3. ISM Core Functions

It is a contractual expectation that the Laboratory "accomplish(es) its mission cost-effectively while striving for an injury-free workplace, minimizing waste streams and avoiding adverse impacts to the environment from its operations." The guiding principles give little detail about how this is to be accomplished.

ISM uses a five-step process to ensure that expectations are (1) established, (2) implemented, and (3) measured and reinforced in every work activity. Figure 1 shows the integration of these expectations with the five core functions, which defines a systematic approach to actions taken when we perform work:

(1) Define the scope of work
(2) Analyze the hazards and environmental aspects
(3) Develop and implement the controls
(4) Perform the work
(5) Ensure performance

Much of what follows is a description of the safety and environmental management system that is being created to implement the five core functions.

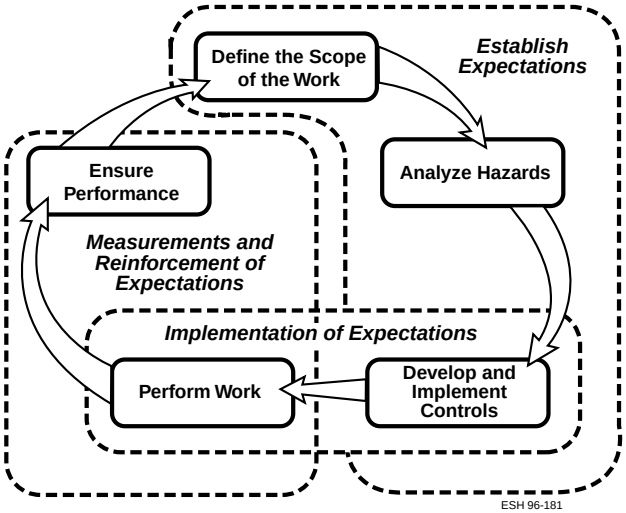

Fig. 1. Relationship between the five core functions and the three expectations.

2.3.1. Meeting ES&H Expectations

The five core functions apply to all work at Los Alamos, from keyboarding to designing experiments to assembling and detonating explosives. The effort required for the application of the principles is determined by the nature of the work and the associated safety and health hazards and potential environmental affects. For work with minimal hazards and environmental affects, such as keyboarding, the application of the functions may be a simple mental exercise at the start of each workday, focusing on the positions of the keyboard, monitor, chair, and body. For assembling and detonating explosives, the process may require expert safety and environmental analysis, formal documentation, and third-party review, extending over many months.

It is important to note in Fig. 1 that while the functions are discrete, the expectations overlap. When developing and implementing controls, you may be both establishing expectations and implementing controls to meet expectations, i.e., defining and creating engineered or administrative controls. When you perform work, you may activate the engineered controls and see that they are operating properly during the work process.

2.3.2. Processes for Application of the Core Functions

Figure 2 gives more detail to the processes used in applying the five core functions. The boxes contain actions typically taken to support each function. The arrows indicate that work begins with some outside direction to take action and that the process is focused on developing a tangible work output. The functions are arranged in a ring to illustrate that this is a process of continuous improvement. It is anticipated that in more complex applications the interrelationships among the different functions may iterate or flow in a different sequence from the directions shown in the figure. The five core functions are the foundation of ISM and the safe and environmentally responsible performance of work.

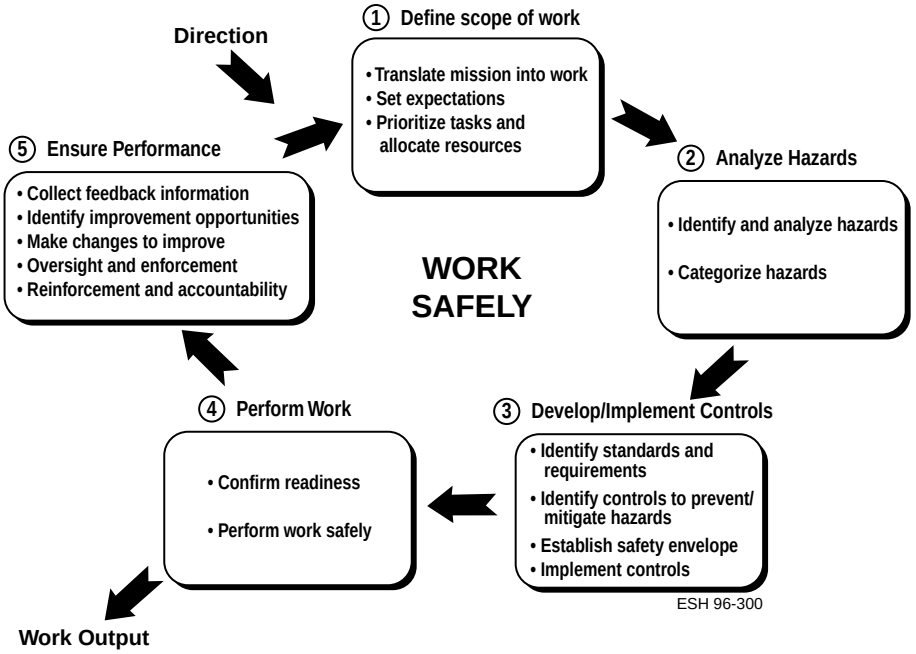

Fig. 2. Laboratory ISM five core functions.

2.3.3. Tailoring versus Uniformity in Application

In a large organization with diverse activities, safety expectations can be based on local practice and vary across the institution, or be uniform across the institution, irrespective of the particular work and local hazards. The Laboratory is challenged to strike a balance between expectations tailored to specific facilities or activities and uniform institutional expectations. In contrast, environmental expectations are based on laws, regulations, and institutional expectations and are typically more uniform across the institution.

Tailoring expectations to local needs allows flexibility and worker discretion that ensures (1) expectations are reasonable, practicable, and effective; (2) the exercise of

judgment is at appropriate decision levels; (3) there is increased worker involvement and buy-in; and (4) there is a balance of competing needs. With tailoring, the degree of rigor and formality in documentation, the nature of controls, and the extent of performance assurance are commensurate with the work hazards and potential environmental impacts.

Uniform institutional requirements give economy-of-scale and uniformity in meeting contractual requirements, allow the Labwide application of industry practice, and reduce liability and risk. These benefits are not easily obtained from tailored expectations that differ from facility to facility. An example of this is the OSHA inspection program that identifies and prioritizes hazards for abatement. The interim protective measures used pending final abatement actions are often not uniform across the Laboratory depending upon severity and life cycle considerations.

To achieve the benefits of both tailoring and uniformity, ISM uses the core functions as a guide in creating tailored expectations in facility and activity work, while retaining a required level of institutional uniformity: work-specific tailoring at the activity level, tailoring to meet the facility's authorization basis at the facility level, and uniform expectations at the institutional level.

2.3.4. Use of the Five Core Functions in Organizations

Application of the five core functions to simple, individual acts of work is intuitive; application to the institution is more complex. Starting with the work, the five core functions are applied at the following levels:

- **Activity** level—discrete work activities performed in the workplace (e.g., a facility maintenance or a research and development activity)
- **Facility** level—collected activities within a specific facility
- **Institutional** level—collected activities of the Laboratory

Figure 3 illustrates the three levels and shows how the five core functions are applied at each level.

Common expectations related to safety and environmental performance apply to all activities encompassed by the Laboratory boundary, as shown in Fig. 3. Each facility adds, as necessary, its own set of expectations to those already established by the institution. Finally, activity-specific expectations may be added by the line organization performing the work. The boxes representing the Laboratory and its elements show the nested relationship of requirements. The series of three, five-step processes show that the core functions apply at all three levels. These processes for determining institution- and facility-level ES&H expectations are based upon the work and associated hazards and potential environmental affects, using input from workers.

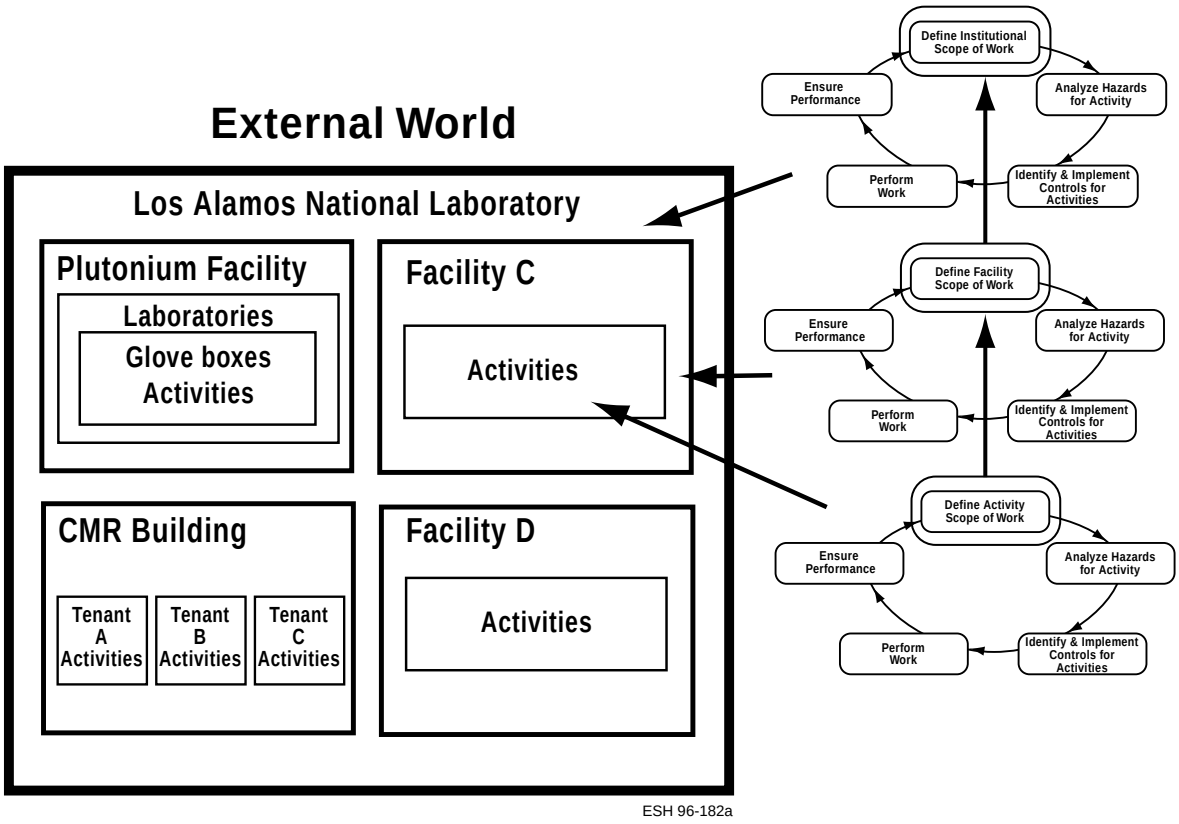

Fig. 3. Core functions as they relate to the three levels.

The core functions in Fig. 3 can be rearranged as shown in Fig. 4, (sometimes called the "Los Alamos prayer wheel") to summarize the major characteristics and relationships of the Laboratory's ISM system.

Figure 4 illustrates that safe and environmentally responsible work at the Laboratory is accomplished by applying the five core functions at each of the three levels. Note that all three levels converge on "Identify & Implement Controls for Activities" and diverge from "Perform Work." Work activities are the starting point for analyzing and understanding hazards and potential environmental impacts and determining safety and environmental expectations or controls. This figure also depicts the applicability of facility and institutional expectations to individual work activities. An activity must not only meet expectations derived from its activity-specific work definition and hazard and environmental impact analysis, but must also meet applicable expectations established for the institution and the facility where the activity is conducted. In general, institutional and facility expectations prescribe specific processes or controls at the activity level only when compelling justification exists for facility-wide or Labwide consistency.

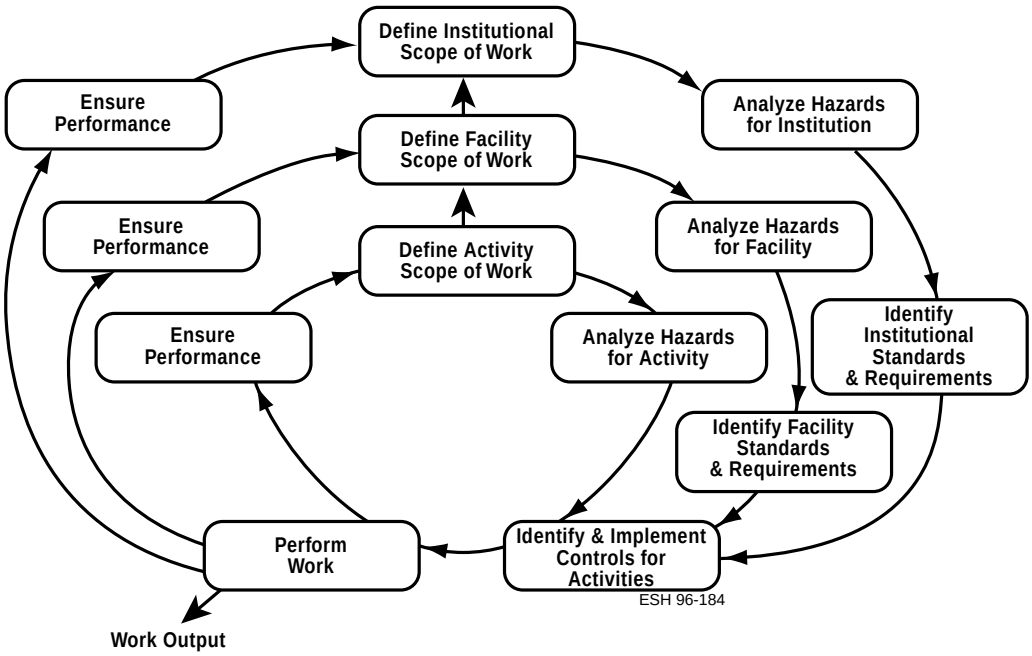

Fig. 4. Core functions at the institutional, facility, and activity levels.

2.3.5. ISM Relationship between Facility and Activity Levels

ISM at the Laboratory is structured to manage and control work at the activity level. All work is performed in a facility management unit (FMU), which consists of the grounds, structures, and services within geographical areas. Tenants of FMUs perform R&D and office work. Work on the physical structures, systems, and grounds of the facility is called facility work. FMUs often serve the needs of many tenants; therefore, work on the facility is controlled in a manner to ensure that an activity does not have unacceptable adverse impacts on tenants. The process for controlling work on facilities is called facility management work control (FMWC) and has requirements documented in the LIRs. FMWC requirements embed the five-step process in a formal process that provides for the authorization of work to be performed by authorized individuals under controlled circumstances. This ensures that the safety and integrity of the facility and its systems shall be maintained during and after completion of the work.

Facilities often provide structures and systems that control or mitigate hazards of work performed within the facility. These controls and systems are called facility-level controls. The existence of and performance of these controls allow work to be done safely within the facility. These facility-level controls and expectations are documented in the facility safety plans (FSPs). The ISM system, through its requirements (LPRs and LIRs), places expectations on the functioning of these facility-level controls. These expectations are derived from the work smart standards (WSS) adopted by LANL and DOE for controlling hazards.

The WSS, LPRs, and LIRs also provide expectations for work activities within a facility that do not involve the facility itself. These expectations are met using the safe work practices work-control process, which embeds the five-step process in its

work and worker authorization process. Safe work practices address the majority of work activities at the Laboratory, including low-hazard office and administrative work and hazardous experimental work. The controls developed by applying the five steps through safe work practices are documented in hazard control plans (HCPs) for the activity or collection of activities to be authorized and performed.

Fundamental to ISM is that all work will be performed safely while meeting the applicable institutional-, facility-, and activity-level requirements. To achieve this integration of the three levels of expectations and controls, the Laboratory has tools that provide the necessary communication between the levels. The ISM requirements system, with its LPRs and LIRs, gives the high-level expectations for the protection of workers, the public, and the environment derived from the WSS set. The FSPs communicate the expectations at the facility level. The HCPs communicate the expectations at the activity level. The FMWC communicates expectations for activity-level facility work. All of these expectations must be consistent if work is to be performed safely and efficiently. Through the use of Facility-Tenant Agreements, the HCP controls are integrated with the FSP controls.

The Facility-Tenant Agreement places restrictions on the work that can be performed in the facility and upon the systems and services provided by the facility to the tenant. There are requirements on changing activities and their controls and changing facility services and controls that must be adhered to by both facility managers (FMs) and tenants. This means that once a Facility-Tenant Agreement has been accepted by both parties, there are agreed-upon communications that must occur concerning work activities and their controls. All work controlled through safe work practices must stay within the limits and control capabilities defined in the FSP, and, conversely, the facility must maintain the controls and systems that allow work to be performed safely in the facility.

When the Laboratory needs to use the services of a vendor to perform work (such as maintenance on equipment), there is a contracting mechanism to do this. Part of the contracting mechanism is a process to identify and communicate the hazards that the vendor may be exposed to while he/she is in the facility performing the work. Also in this process is a means by which the vendor agrees to perform the work safely and meet the applicable national codes and standards. The ES&H portion of the contracting mechanism is contained in “Notice 10” of the ISM requirements system. “Notice 10” supplements the work control process of both FMWC and safe work practices, since either type of work may use vendors.

The remainder of this document describes in greater detail the ISM processes and expectations used to perform work safely and in an environmentally responsible manner. Each of these processes or sets of requirements can be pictured as a set of nested rings that center on the safe performance of work, with facility and institutional rings supporting and supplementing the other rings. At any point during the planning and performance of work, one or more of the institutional-, facility-, or activity-level expectations or controls may come to bear on the work. The ISM system is designed to assist workers and supervisors in selecting and applying the appropriate controls and processes to meet the applicable expectations. The fundamental linking processes are safe work practices, FMWC, FSPs, and Facility-Tenant Agreements.

2.3.6. Application of Core Functions to the Environment

Application of the core functions to the environment requires additional considerations beyond those applied to worker safety. These additional requirements come from a subtle but significant difference between how hazards can directly affect a worker and how hazards may affect the environment. Some activities may generate very minor exposures of the environment to hazardous materials or energy. For any single activity, these exposures cause little or no harm. A modest negative environmental effect by a single activity that does not stress the environment beyond its natural, self-healing capability may not need to be prevented or controlled. However, should many activities cause a similar effect, and should the accumulation of all those activities overwhelm the environment's self-healing capability or exceed a regulatory or permit limit, then the activities need to be controlled to prevent or mitigate the negative effects. Cost-effective controls or mitigators are to be found and applied in these instances just as for worker protection. In many instances, the cost-effective controls will be institutional in nature, as compared to activity specific (e.g., discharge limits for facilities and waste minimization goals for the Laboratory).

Designing and continuously improving all activities so they are inherently compliant and protective of the environment is the best approach to environmentally responsible management. The Laboratory identifies the most serious institutional environmental risks. Special expectations are established for facilities and activities which increase those risks. In all cases, a graded approach is taken. An activity that increases a specific risk by a trivial amount is not controlled with the same rigor as an activity that significantly increases that risk.

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3.0. Roles and Responsibilities

3.1. Basis in ISM

Line managers and other workers of an organization are ultimately responsible and accountable for performing their work safely and in an environmentally responsible manner. Clear and unambiguous roles and lines of responsibility, authority, and accountability at all organizational levels of the Laboratory are necessary to meet the expectations of an integrated management system. In addition, supporting ES&H roles are provided by

- program organizations that are responsible and accountable for allocating sufficient resources for the ES&H of their program's activities and facilities;
- facility organizations that are responsible and accountable for providing safe facilities; and
- service organizations that are responsible and accountable for providing expertise, assistance, services, and institutional processes.

As established here, the ES&H roles and responsibilities (R&R) of any given individual at the Laboratory are determined both by the individual's job position in a safety- and environment-responsible line-management chain and the role of the organization to which they belong. Therefore, the first part of this discussion addresses R&R, determined by the individual's position in the safety- and environment-responsible line-management chain, while the second part covers organizational roles and related authorities and responsibilities.

3.2. Who Is Covered

The requirements for ES&H responsibility described herein apply, as indicated, to the entire workforce and to all areas of worker, public, and environmental protection. The workforce comprises all Laboratory workers employed by UC, all of its on-site subcontractors, and official visitors. All Laboratory workers are accountable for ES&H performance. Administrative Manual (AM) 112 and AM 100.I establish ES&H accountability policies.

3.3. Safety- and Environment-Responsible Line-Management Chain

3.3.1. Definition of the Chain

Each person at the Laboratory is part of a safety- and environment-responsible line-management chain charged with creating an injury-free workplace and minimizing adverse environmental impacts. Unless this responsibility is formally transferred, all UC employees, subcontractors, and official visitors are part of the safety- and environment-responsible chain of the organization to which they belong. Figure 5 shows the usual safety- and environment-responsible line-management chain for UC employees. As shown, this chain starts with any employee and flows upward through the Laboratory Director (note that some chains do not include an Associate Laboratory Director).

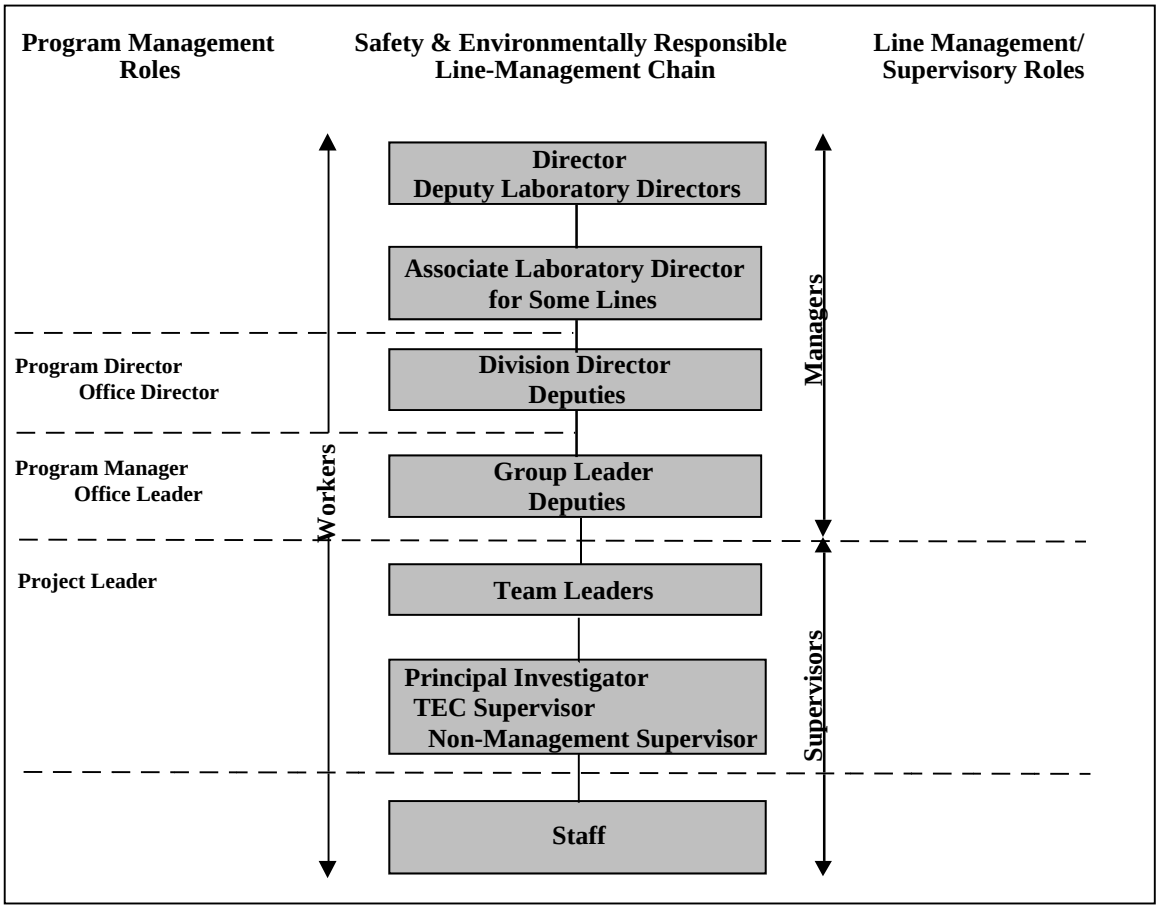

Fig. 5. Safety- and environment-responsible line-management chain.

When work is directed by another person, a safety- and environment-responsible line-management chain exists. The Laboratory has established management and supervisory positions that formalize the direction of work, and these are used to define the safety- and environment-responsible line-management chain for UC employees. Similar chains exist in the Laboratory's subcontractor organizations, but the particular management titles may differ (subcontractor workers are addressed in Section 3.3.3).

- The UC safety- and environment-responsible line-management chain starts with any employee and flows upward through the Laboratory Director. Below the group-leader level, the safety- and environment-responsible chain includes "workers on the floor" and may include non-management supervisors (such as team leaders, principal investigators, or TEC supervisors) who direct the day-to-day activities of employees under their supervision.
- Starting with the group-leader level and flowing upward through the Laboratory Director, the chain is defined by the succession of direct reports that establish job assignments, appraise performance, and determine salaries.
- Except by a formal written agreement, a member of one organization cannot be part of another organization's safety- and environment-responsible line-management chain. At any time, an individual can be a member of only one safety-responsible chain.

- Collectively, the safety- and environment-responsible line-management chain, from the employee through the Laboratory Director, is responsible for the ES&H of the work done by the organization, although workers at different levels have different responsibilities and authorities.
- The line-management chain is responsible for meeting DOE ES&H reporting requirements that occurrences (including near misses) and accidents and injuries are both reduced and consistently reported. LIRs provide the requirements and define the processes to be used.

3.3.2. Deployed Personnel

The staff of a Laboratory organization is often augmented by the addition of workers from another organization. This might be the result of deploying workers to support a particular project, organization, or facility. In these instances, the deployed person may not have any contact with his or her organizational line manager for extended periods of time, and the line manager may not have an adequate understanding or control of the hazards in the deployed person's work environment. In such cases, the line management ES&H responsibility may be transferred to an accepting organization with the following conditions:

- The transfer of ES&H responsibility must be documented and agreed to by the home and accepting organizations.
- The home organization retains salary and performance responsibility.
- The accepting organization assumes an ES&H responsibility equivalent to that of its regular employees.

3.3.3. Subcontractors

Laboratory subcontractors are either contract laborers hired through personal service contracts or independent task-oriented subcontractors. Contract labor, used to augment the staff, permits direct supervision by UC personnel and provides use of Laboratory facilities and equipment. Contract labor subcontractors become part of the line-management chain of the contract-holding organization. If the subcontractor's work is directed under a different chain than the contract-holding organization, then responsibility must be formally transferred to that different chain. In this relationship, the UC chain is responsible for safety, but performance, disciplinary, and other personnel actions remain the responsibility of the contract labor subcontractor organization.

Independent task-oriented subcontractors have specific statements of work identifying discrete tasks and deliverables. These subcontractors work independently of the Laboratory to deliver the specified technical product. There is no direct UC supervision, notwithstanding technical direction. Task-oriented subcontractors (including JCNNM, PTLA, service/maintenance, and construction subcontractors) are part of a safety- and environment-responsible line-management chain within their companies. UC employees who request the services of a subcontractor have a supporting safety and environmental responsibility for coordinating the Laboratory interface, for providing a safe work environment for subcontractor personnel, and for communicating ES&H expectations to the subcontractor. Subcontractors must meet safety expectations identical or equivalent to those of the Laboratory. When these conditions are met and appropriate contracts are established, safety responsibility for an activity may be transferred to the

subcontractor. If the subcontractor is involved in an activity that may have an environmental impact, special precautions must be taken to mitigate that impact. In addition, subcontractors are also responsible for complying with all applicable ES&H laws and regulations while performing work on the site.

3.3.4. Student Safety Mentoring Expectations

The student population presents unique opportunities and challenges. The Laboratory's expectations for student safety are the same as for all employees, and our goal remains zero injuries and illnesses. Students are often less experienced in their fields and may not have completed their formal education. In addition, their employment at the Laboratory is often compressed into concentrated periods of time during the summer or during school breaks. At the same time, our student population represents our future workforce, and their student work experience at the Laboratory provides an outstanding opportunity to begin the process of developing an understanding of the Laboratory's ISM culture and expectations.

To ensure proper safety management of our student population, the line management chain for each student must be made clear to the student and their supervisor(s) and mentor(s). In addition, each division must ensure each student is assigned a mentor who is supported by a strong and effective mentoring program. This mentoring program must ensure the selection of high-quality mentors; adequate preparation before a student's arrival; proper training, supervision, and student involvement in safety issues during the student's work tenure; and an effective feedback process both during and upon completion of a student's employment. This program must be supported in each division's ISM organizational plan.

3.3.5. Official Visitors

Official visitors (including guests, consultants, and other people that visit or perform work at the Laboratory) have the same ES&H responsibility as UC employees. However, in these cases, the Laboratory host organization is the safety- and environment-responsible line-management chain.

3.3.6. Work Off-Site

UC employees that work off-site from the Laboratory shall be integrated, as appropriate, into the safety- and environment-responsible line-management chain of the host organization. It is the responsibility of the employee's Laboratory line manager to ascertain that this has, in fact, happened.

If the ES&H practices of the host site are deemed inadequate by the employee or their line manager, or it is not possible for the employee to be integrated into the host line-management chain, the ES&H responsibility remains with the Laboratory safety- and environment-responsible line-management chain.

Laboratory groups use the Nevada Test Site (NTS) to conduct experiments in support of their missions. The Laboratory maintains a small contingent of resident employees at the NTS to provide technical support and facilitate the work of experimenters from Los Alamos. All Laboratory activities will be conducted consistent with ISM core functions. The Laboratory's Test Group Director ensures that the ISM core functions are applied to Laboratory activities at NTS. The "Tri-Laboratory Integrated Safety Management System Interface Document (Tri-Lab

ISMSID)" describes the supplemental ISM safety management systems and controls that are used at NTS for work under the purview of DOE/NV. The Tri-Lab ISMSID is not a stand alone ISMS, nor is it intended to replace or detract from the Laboratory's ISM Description Document. It simply supplements and complements this document. The Tri-Lab ISMSID serves as an interface document to link the various ISM Systems in a coherent and responsible manner. All LANL personnel traveling to and working at the NTS are required to read and become familiar with the Operations Manual for the NTS (TDO/NTS:U-99-022). This document can be accessed through the LANL homepage under official documents Notice 0047.

3.4. Responsibilities of Members of the Safety- and Environment-Responsible Chain

3.4.1. The Workforce

Working safely and in an environmentally responsible manner is every worker's responsibility and a condition for employment at the Laboratory. Every individual on the Laboratory site is part of a safety- and environment-responsible line-management chain charged with creating a safe and environmentally responsible workplace. As noted in Fig. 5, each person in the chain is a worker who at times may also perform supervisory or management functions, depending upon their role. The responsibilities and authorities for each worker are determined by the function he or she is performing in their job assignment. Each worker has the responsibility and authority to

- perform all work safely, contribute to the safety of those around them, and minimize adverse environmental effects;
- ensure that all work is authorized and done in accordance with the five core functions of ISM, as required by the safe work practices LIR, FMWC, or "Notice 10";
- ensure applicable ES&H requirements are met (including compliance with all ES&H laws and regulations);
- use lessons-learned from any control failures, near misses, or accidents to make system improvements; and
- stop work that is perceived to be unsafe or environmentally irresponsible.

3.4.2. Supervisors and Managers

As shown in Fig. 5, supervisors are those persons who direct the work of others. Managers are supervisors when they are functioning to direct the work of others in their safety- and environment-responsible line-management chain. Supervisors and managers have the authority and are expected to hold their employees accountable for ES&H. In addition to their ES&H roles as members of the workforce, supervisors at all levels have the responsibility and authority to

- actively and visibly demonstrate their personal commitment to ES&H by providing sustained leadership, including promoting, modeling, and ensuring safe and environmentally responsible behaviors and compliance with all applicable ES&H laws and regulations;
- involve workers in all aspects of working safely and provide essential resources, including training, systems, and tools, for performing work safely and in an environmentally responsible manner;
- authorize work and workers consistent with SWP;

- review the work of supervised personnel for the effectiveness and utilization of hazard controls to identify opportunities for improvement;
- work with ESH Division to abate the hazards identified by the OSHA self-assessment-type inspections;
- resolve disputes and conflicts about ES&H; and
- identify and communicate the resources necessary to safely do the work. Line managers (group management through Laboratory Director) communicate to their program offices, or other funding provider, the resources necessary to safely do their organization's work. Non-management supervisors communicate through their line supervisors, unless otherwise delegated.

The overall responsibility for ensuring that the appropriate ES&H values, systems, processes, and resources are present increases with the level of management up the safety-responsible chain.

3.5. Organization-Related Roles, Authorities, and Responsibilities

In addition to ES&H responsibilities determined by an individual's role in the safety- and environment-responsible line-management chain, ES&H responsibilities are also based upon the roles of the organization to which he/she belongs. The roles of organizations can be categorized as operating, program, facility, or service. While most Laboratory organizations predominantly serve a single role, in many cases, organizations serve multiple roles. For example, the same organization can have both program and operating roles or both support and operating roles. All Laboratory organizations do work and have safety- and environment-responsible line-management chains. Figure 6 shows a simplified schematic of the Laboratory's organizational structure.

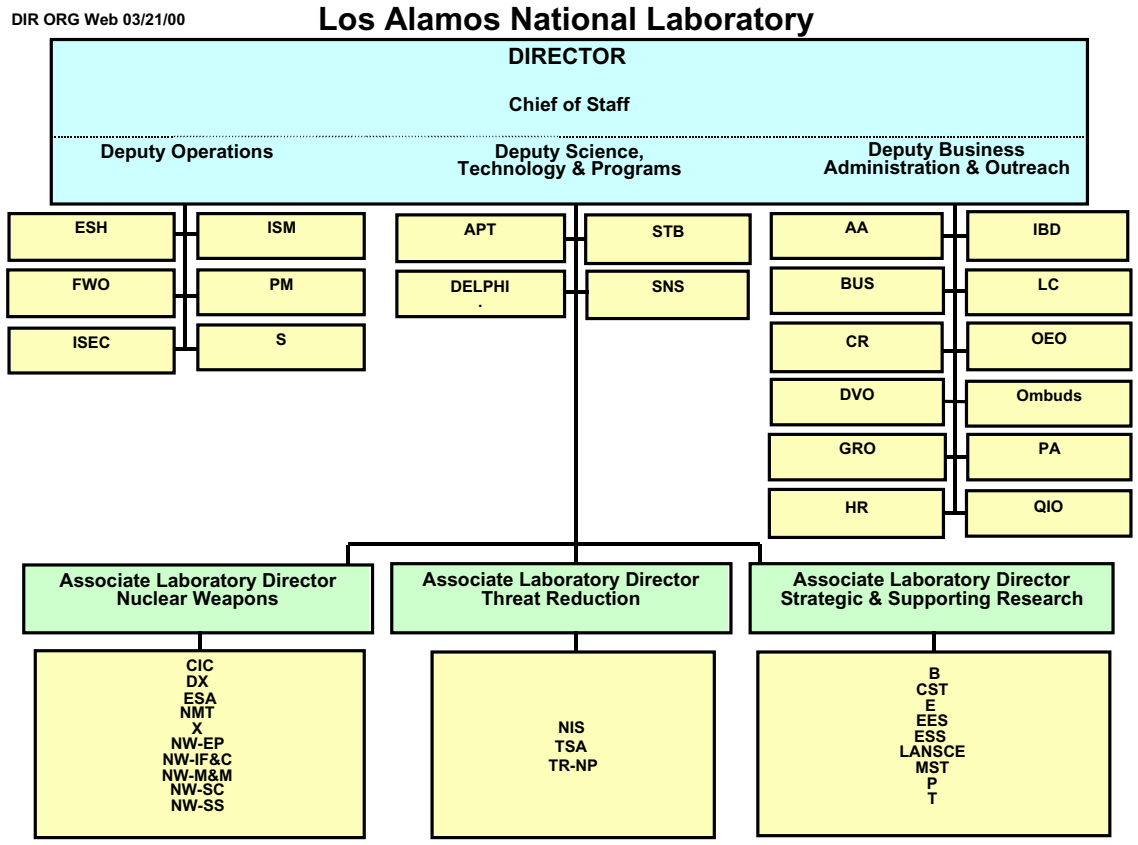

Fig. 6. Laboratory organization.

This section establishes the ES&H responsibilities for LANL organizations having major roles in ES&H at the Laboratory. Responsibilities are determined by the assigned role of the organization. Therefore, the first part of the section establishes general responsibilities based upon an organization's roles, and the latter part addresses roles and responsibilities of specific Laboratory organizations.

3.5.1. Science and Technology Organizations

Science and technology (S&T) organizations perform the programmatic, or mission-related, work of the Laboratory. The responsibilities of individuals working in S&T organizations are those discussed in Secs. 3.3 and 3.4.

3.5.2. Program Organizations

Program organizations provide the primary coordination and liaison with outside sponsors for work done at LANL. Unless they are acting in the capacity of a line manager for their organization (e.g., when supervising office staff), program directors, program managers, and project leaders have limited accountability for safety or environmental performance. In addition to their safety- and environment-responsible line-management chain roles, individuals working in program assignments have responsibility and authority for the following:

- establishing expectations and requirements to ensure that Laboratory standards for environment, safety, and health are a part of program plans, funding, and project definitions;

- ensuring that ES&H is an integral and discernible part of the work planning and execution process;
- ensuring that resources, plans, schedules, and facilities are adequate to perform the work in a manner that protects the workers, public, and the environment and meets all applicable ES&H laws and regulations; and
- communicating and supporting ES&H schedule and budget requirements to line managers and customers, as required.

Pantex Support

Los Alamos and the rest of the weapons community has been wrestling with the issue of Laboratory responsibilities for safety analysis at Pantex for several years. The first formal enunciation of responsibilities was provided by a memo (dated September 4, 1998) from Bruce Twining to Steve Younger. This memo required that Los Alamos provide weapon response inputs to the documents that are developed jointly by the Laboratory, Mason & Hanger, and DOE Project Teams. The memo also requires (1) that Los Alamos verifies the accuracy of these inputs and how they were interpreted, (2) that LANL states that the hazard analysis is adequate, and (3) that the controls developed will mitigate the hazards.

This language was subsequently modified and incorporated into the *D & P Manual*, Chap. 11.4, Sec. 5.6 – "Design Agencies." The Laboratory has worked with the Surety Division of DOE / AL, Sandia National Laboratories, and Lawrence Livermore National Laboratory (LLNL) to negotiate the following language, which the Laboratory believes is acceptable to all parties, although it is not yet incorporated into the chapter.

> "… For weapon program and site operation projects, the cognizant design agencies are primarily responsible for:
>
> • Providing weapon and hazardous component response information to the Pantex M&O Contractor for accident scenarios identified in the hazard analysis. This information shall be included in the Weapon Safety Specification (WSS) and other documentation, as appropriate.
>
> • Reviewing the proposed operations and AB (authorization basis) documentation to ensure design agency input including weapon response information has been understood and appropriately addressed.
>
> In addition, for weapon program operations, the cognizant design agencies are responsible for:
>
> • Reviewing the proposed operations, AB documentation and hazard identification processes to assess whether the Pantex M&O contractor process provides a high level of confidence that hazards that could result in a weapon response have been identified."

BIOs (bases for interim operations) are the responsibility of Mason and Hanger. Los Alamos, as a member of the Project Team (PT), assists by carrying out assignments from the PT Leader. Such assignments normally include weapon response to hazardous environments identified by the PT and may also include

tasks related to development of the HAR (hazard analysis report). For these studies, Los Alamos will verify the accuracy and interpretation of these inputs. This verification will be carried out by independent review; i.e., LANL will provide independent reviewers for new weapon response information or compare inputs to those previously developed and reviewed by independent in-house experts or by LLNL. Hazard analysis or other analytical inputs will be reviewed by experts not directly involved in developing the inputs.

By carrying out these reviews, LANL will provide institutional agreement that the inputs are accurate and correctly interpreted and will make no statements regarding the adequacy of the overall study.

The highest level of responsibility for the Laboratory is associated with the assessment of an operation for the disassembly, inspection, and reassembly of a weapon of LANL design. In this case, LANL plays a central role in defining tooling and procedures used to carry out the work. Thus, while as before, the Laboratory's direct inputs to the input documentation will be as assigned by the PT, LANL also has, in this instance, a responsibility to review the hazards analysis, the weapon response (both the response and how it is used), and the controls. Review of the latter (the controls) is not required by the agreed-upon language; LANL will provide only comments on controls. As for the BIOs, these reviews will be carried out independently and in the same fashion. Reviews will be carried out in parallel with the development of the documentation so that comments which require addressing can be worked promptly. Final results of the reviews will be provided in writing to DOE/AL for their use in approving the safety authorization basis.

3.5.3. Facility Management Organizations

The Laboratory uses distributed facility management to provide and maintain facilities to support the performance of work in a manner that protects the workers, the public, and the environment. Facilities are owned by a DD and managed by a FM, who acts as their agent.

Facility management organizations are responsible for providing safe facilities in which work is performed. This includes (1) establishing facility operating limits (safety and environmental envelope) that bound the work that can be done safely and in an environmentally responsible manner in the facility; and (2) providing essential facility infrastructure (including facility-related structures, systems, and management processes) to support safe work in the facility. In addition to their safety- and environment-responsible roles, individuals working in facility management organizations have responsibility and authority for

- safely operating the facilities and for providing responsive and reliable facilities and services to support tenants' operational responsibilities;
- establishing and maintaining the FSP (i.e., the authorization basis) to define the facility operating limits (safety and environmental envelope);
- notifying DOE when a joint decision is needed on the necessity for a separate authorization agreement for a facility or operation;
- establishing facility-level requirements to ensure that the facility operating limits and compliance with all ES&H laws and regulations are maintained;

- establishing, as appropriate, authorization agreements with the DOE, based upon FSPs;
- communicating facility operating limits and requirements to facility tenants and their cognizant line management through Facility-Tenant Agreements;
- periodically reviewing and permitting tenant work in the facility;
  Note: This means that the FM can say yes—the work may be performed; or, no—the work may not be performed; or can stop work that presents an immediate hazard or breach of the facility safety and environmental envelope.
- safely managing all facility-related work, such as maintenance, repair, modification, or construction within the facility; and
- communicating resource requirements to facility funding providers.

The relationship between the facility and line organizations is shown in Fig. 7. This illustration shows that both line A and line B must meet the institutional and facility requirements. Activity requirements apply to work being performed by line B. The Facility-Tenant Agreement and the FSP define the interface between the line-A facility management organization and the line-B tenant organization. The FM permits work, and the activity line manager directs work.

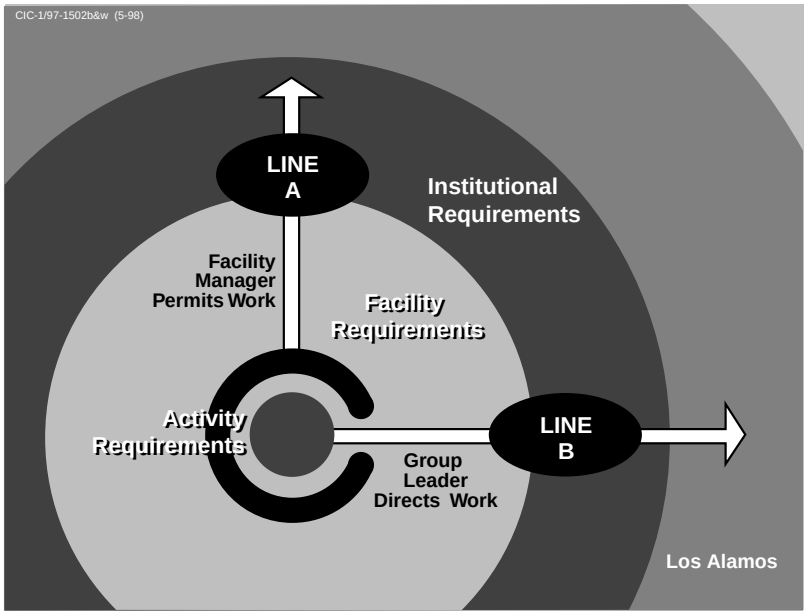

Fig. 7. Interface between facility and line management: permitting and directing work.

It is the responsibility of tenants of a facility to work within the facility safety and environmental envelope. The tenants' line management shall also (1) inform and seek the approval of the FM for activities planned in the facility that are not already clearly permitted by the Facility-Tenant Agreement or the FSP; and (2) work with the FM to ensure that the integrity of the facility operating limits is maintained.

3.5.4. Institutional Service Organizations

Institutional service organizations provide support and services to help meet the needs of S&T, program, and facility organizations. They also provide coordination across the institution and support institution-wide needs. In addition to their safety

and environmental chain roles, individuals working in support and service assignments have responsibility and authority for

- providing vision, leadership, direction, communication, and facilitation to promote continuous improvement and ES&H excellence;
- serving as the central point of contact, coordination, and support for interactions with regulators, stakeholders, and the public, involving other Laboratory organizations in these interactions, as appropriate;
- managing processes to ensure the existence of necessary and appropriate institutional expectations in the form of ES&H standards, policies, and requirements;
- providing performance feedback and elevating issues to line management (but not enforcement which is a line management responsibility); and
- communicating resource requirements to funding providers.

3.6. Specific Organizations

3.6.1. Director's Office

The Director's Office has line management RR in all four organizational functions: operating, program, facility, and service. This office includes the Laboratory Director and the DLDs for the following: Operations; Science, Technology, and Programs; and Business Administration and Outreach. The DLD for Science, Technology, and Programs serves as the Laboratory's principal deputy. The Associate Laboratory Directors (ALDs) for Nuclear Weapons, Threat Reduction, and Strategic and Supporting Research report to the Laboratory Director. As the top of the line-management chain, these managers have ultimate responsibility and authority for protecting workers, the public, and the environment, including establishing, communicating, and reinforcing the Laboratory's ES&H values and vision (see Fig. 6).

3.6.2. Operations Working Group (OWG)

The OWG is the primary management advisory and oversight organization for Laboratory operations, including ES&H. This group is chaired by the DLD for Operations and includes selected division-level directors, the ISM program manager, and representatives from DOE/LAAO, JCNNM, PTLA, UC, and the Facility Management Program Office. The OWG is responsible for

- monitoring the effectiveness of ES&H at the Laboratory by reviewing performance measures, assessments, accidents and incidents, and related activities;
- developing recommendations for addressing ES&H problems and improvements to the DLD for Operations;
- providing senior managers with relevant ES&H information and engaging them in addressing Labwide issues; and
- chartering and reviewing the activities of ES&H-related committees.

3.6.3. Integrated Safety Management Program Office

The ISM Program Office is responsible for overall institutional coordination and tracking of the Laboratory's Integrated Safety Management System. This office is responsible for

- providing leadership and coordinating the implementation of ISM;

- tracking and evaluating the status of the deliverables for the Laboratory's ISM Continuous Improvement Plan; and
- helping to address ISM issues and elevating them, as necessary, to management.

The ISM Steering Team authors this document and provides guidance for the Laboratory's ISM Program.

3.6.4. Environment, Safety, and Health (ESH) Division

ESH Division is primarily a service organization that provides a broad range of technical expertise and assistance in areas that include worker health and safety, environmental protection, facility safety, nuclear safety, hazardous materials response, ES&H training, occurrence investigation and lessons-learned, and quality. The division has responsibility and authority for

- providing staff and subject matter expertise to lead, promote, and facilitate implementation and sustained execution of ISM;
- promoting ES&H excellence and providing ES&H leadership throughout the Laboratory;
- perform OSHA self-assessment-type workplace safety inspections for the Laboratory and prioritize hazards for abatement;
- managing the institutional requirements system including contractual ES&H standards, LPRs, and LIRs;
- coordinating, maintaining, and providing implementing assistance of institutional requirements relating to ES&H;
- serving as the central point of institutional contact, coordination, and support for interfaces with ES&H regulators, stakeholders, and the public, including the DOE, the Defense Nuclear Facilities Safety Board (DNFSB), the New Mexico Environmental Department (NMED), and the Environmental Protection Agency (EPA);
- providing ES&H performance feedback, elevating issues, and making recommendations to Laboratory organizations; and
- providing ES&H support and services, including technology improvement, compliance guidance, and developing measures, objectives, and targets that continuously reduce the risk of environmental non-compliance throughout the Laboratory.

3.6.5. Environmental Science and Waste Technology (E) Division

E Division manages the Laboratory's Environmental Restoration Project and Environmental Stewardship Office. The division also provides environmental science and technology development. Included in E are not only major program and operating roles, but also service and facility roles. The division has responsibility and authority for

- planning, directing, procuring funding, and managing the Laboratory's environmental restoration activities;
- providing leadership and services relating to pollution prevention and environmental stewardship, including developing measures, objectives, and targets for pollution and waste reduction;
- providing technical and scientific support to line organizations and Laboratory management on waste management, D&D (decontamination and decommissioning), and pollution prevention and waste minimization;

- providing multi-disciplinary research on decontamination, TRU (transuranic) waste characterization and treatment, environmental chemistry, contaminant transport and remediation, and on isotope chemistry for environmental and proliferation issues; and
- coordinating, maintaining, and providing implementing assistance of institutional requirements (LPRs and LIRs) relating to waste management and environmental stewardship.

3.6.6. Facilities & Waste Operations (FWO) Division

FWO Division is primarily a service organization that assures that current and future facilities and infrastructure are planned, built, operated, maintained, and provided with appropriate facilities support and services. This includes facilities engineering, maintenance and operations services, fire protection services, utilities, coordination of facility management, and facilities planning. The division has responsibility and authority for

- promoting excellence of facilities and facility operations throughout the Laboratory;
- coordinating, maintaining, and providing implementing assistance of institutional requirements (LPRs and LIRs) relating to facilities;
- providing institutional coordination with regulators, including the DOE and the DNFSB, in matters relating to facilities;
- providing coordination of the FMUs via the ;
- providing facility support and services throughout the Laboratory, including developing measures, objectives, and targets for energy, water, and natural resource conservation;
- managing all institutional waste management operations, including the sanitary waste-water system, the Radioactive Liquid Waste Treatment Facility, the low-level radioactive waste disposal facility, and the long-term storage facilities for hazardous, mixed low-level, and TRU wastes; and
- providing facility engineering, maintenance, operations, utilities, and fire protection services throughout the Laboratory.

3.6.7. Project Management (PM) Division

PM Division is primarily a service organization that provides project management, engineering, and construction expertise and assistance in areas relating to the planning, design, and construction of Laboratory facilities and other physical assets. Services include application of formal systems engineering controls to manage project resources, engineering services, and construction services that drive successful project completion. The division has responsibility and authority for

- providing the central institutional base for the project management core competency at LANL;
- managing line-item, expense, and general plant construction projects;
- establishing and controlling project technical scope, cost, and schedule baselines to support successful completion of construction projects;
- directing the Laboratory's acquisition and management of engineering, construction, and design/build contractor services;
- managing the Laboratory's comprehensive site planning process; and
- providing assistance in implementation of institutional requirements (LPRs and LIRs) pertinent to facility project management and comprehensive site planning.

3.6.8. Emergency Management & Response (EM&R) Group

EM&R, residing in the Security and Safeguards Division, has responsibility for institutional emergency planning and response for emergencies occurring on DOE/LANL property. EM&R has responsibility and authority for

- training and maintaining personnel to respond to emergencies, including incident commanders, other response personnel, and LANL emergency directors;
- maintaining the Emergency Operations Center (EOC) and Alternate EOC in an operational readiness condition;
- interfacing with surrounding jurisdictions and entities on emergency response, planning, and preparedness matters;
- responding to emergencies, including assessment, classification, notification, mitigation, and recovery;
- establishing and implementing a drill and exercise program; and
- coordinating, maintaining, and providing implementing assistance of the Laboratory's Emergency Management Plan and other institutional requirements (LPRs and LIRs) relating to emergency response.

3.6.9. Audits and Assessments (AA) Office

Audits and Assessments provides formal audits, assessments, and evaluations of Laboratory facilities and operations. AA has responsibility and authority for

- developing and implementing an internal independent assessment program;
- coordinating, maintaining, and providing implementing assistance of institutional requirements (LPRs and LIRs) relating to performance assurance;
- evaluating division-level self-assessments and ES&H function evaluations to provide a comprehensive, integrated summary of Laboratory ES&H performance to the Laboratory Director;
- facilitating the development, tracking, and evaluation of the status of corrective action plans for both internal and external ES&H appraisals; and
- serving as the central point of contact, coordination, and support for all external and internal ES&H assessments.

3.6.10. Business Operations (BUS) Division

BUS manages and coordinates the Laboratory's institutional processes for resource planning, prioritization, and management and for establishing subcontracts. They also provide services for packaging and transportation (P&T) of radioactive and hazardous materials.

In these roles, BUS has responsibility and authority for

- providing effective institutional processes for managing resource planning and prioritization to meet ES&H needs;
- providing effective processes for managing the ES&H needs of contractual relationships with Laboratory subcontractors;
- coordinating, maintaining, and providing implementing assistance of institutional requirements (LPRs and LIRs) relating to P&T;
- serving as the central point of institutional contact, coordination, and support for interfaces with P&T regulators, including the DOE and Department of Transportation (DOT);
- providing P&T performance feedback and recommendations to Laboratory organizations; and
- providing P&T support and services throughout the Laboratory.

3.6.11. ISM Safety Committees

Labwide ES&H committees provide specialized expertise for meeting specific institutional requirements. Commonly referred to as institutional "safety" committees, these committees (1) have a strong relationship to environmental, safety, and health issues; (2) have a technical or operational, rather than organizational, focus; and (3) have a Labwide scope. Committees are chartered in response to specific laws, LIRs, or best work practices. Committee members comprise experienced Laboratory experts from a particular discipline, with some committees having members external to the Laboratory. Every committee is accountable, auditable, and reports to a specific Laboratory manager. The role of this manager is to serve as champion for the committee and includes issue resolution; approval of funding, as appropriate; membership; reporting; and communicating with Laboratory senior management.

Committees can be authorized either to approve work activities or to serve only in an advisory role. In either case, the safety- and environment-responsible line-management chain retains the ultimate responsibility for authorizing and directing the work and ensuring it is done safely. However, some committees have the authority to permit or prohibit work, as described in their committee charter.

Charters for each committee contain a discussion of the committee's purpose and a statement of their authority. Charters also establish provisions for membership appointment and terms, reporting structure, funding mechanisms, and other information relating to the functions of the committee. Laboratory safety committees are created and dissolved as requirements change, and charters contain sunset clauses to ensure that justification for continuation is reaffirmed periodically. The DLD for Operations is responsible for overseeing the committees, establishing essential funding mechanisms, and ensuring that these requirements are met.

A listing of Laboratory safety committees and current committee chairs is maintained by ESH-DO and can be accessed through the LANL home page under the general topic of safety.

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4.0. Training

An essential aspect of preparing for work is ensuring that the workforce possesses the appropriate level of experience, knowledge, skills, and abilities to safely and effectively discharge their responsibilities. The Laboratory's training programs build the knowledge, skills, and abilities of the Laboratory workforce, commensurate with their assigned jobs, to support the safe and environmentally responsible performance of Laboratory work. The Laboratory's systematically designed training program, delivered by decentralized organizations with centralized program management, provides the workforce with institutional, facility, and job-specific training, as appropriate.

Labwide training organizations offer training courses and programs to train the workforce in accordance with applicable laws, regulations, orders, and Laboratory requirements. Line managers ensure that workers receive training commensurate with job assignments. As appropriate, Laboratory facility owners identify and design worker qualification and certification programs for workers performing jobs that have higher risks.

The institutional Laboratory training requirements are based on LIRs, CFRs (Codes of Federal Regulation), and Appendix-G of the UC-DOE contract. Facility- and job-specific training requirements are based on the risks and hazards specific to each facility. Job-specific training takes into account safety, knowledge, and skill requirements. The Laboratory Training Questionnaire (in LIR-300-00-04) is a tool to assist managers and workers in identifying required training based on job functions performed. The Employee Development System (EDS) is the Laboratory's official database of training records for UC and contract employees, including the training records of subcontractors. Training data recorded and reported in EDS includes course and worker training histories, training plans, training notifications, and training status reports. Electronic training plans in the EDS enable the Laboratory to track a course or group of courses required for specific workers to perform specific job functions and to check whether the training has been completed or has expired. These plans are an important electronic tool supporting the worker authorization process.

OJT (on-the-job-training) is an instructional method in which Laboratory workers learn job-specific knowledge and skills in the work environment. OJT is delivered in a systematically developed and consistent manner and documented. A graded approach to OJT is used at the Laboratory and takes into account the level of risk to determine the amount of formality to apply to OJT. The higher the risk, the greater the formality in the preparation and delivery of the OJT.

The Laboratory also provides opportunities for employees to enhance their professional growth and development through educational and career development opportunities, as defined within the UC-DOE contract.

4.1 Senior Technical Managers

Senior technical managers are line managers at the level of DD and above. This includes DDs, ALDs, DLDs, the Laboratory Director, and the program manager for ISM. Senior technical managers must have demonstrated technical understanding of the work and hazards associated with the missions of their organizations. Facility-owning DDs must understand the authorization bases for the facilities and

operations they own and be qualified for unescorted access to these facilities consistent with safety requirements. During each year, the Laboratory Director will host speakers that are recognized experts in the field of ES&H. Attendance by senior technical managers is required for at least two of these sessions.

4.2. All Managers and Supervisors

To maintain the Laboratory's commitment to safety as our highest priority and to ensure the continued integration of ES&H into all aspects of our work activities, it is necessary that managers at all levels find ways to continuously improve their understanding of ES&H.

This process has two aspects:

1. Required core ISM training for new managers and supervisors is based on the 1998-99 Director's workshop: Managing Environment, Safety, and Health. Human Resources (HR) and ESH divisions will provide this training.
2. The DLD for Operations determines the on-going ISM training requirements for managers and supervisors. HR and ESH divisions provide this training.

4.3. Facility Managers

In addition to the training stated above, training and qualification for FMs are consistent with the requirement of LIR 280-01-01, "Facility Management Training and Qualification (FMTQ) Program." This training is coordinated by the and is provided through institutional training organizations.

The Facility Management Training and Qualification Program consists of two components: core requirements and FMU-specific requirements. See LIR 280-01-01 for a complete discussion.

4.4. Workers

All new workers are required to take General Employee Training (GET), which provides basic employee knowledge regarding safety, health, and the environment. Additional safety training required for workers is based on the job function, the location of the work, and the individual work activities each worker performs. UC employees, JCNNM, PTLA, and contract labor personnel complete a training questionnaire to determine the appropriate training and training plans. The training questionnaire is validated on a yearly basis during performance appraisal time or whenever a job function, work location, or activity changes significantly. Additional OJT may be added to individual training plans, as appropriate.

Subcontractors, other than the aforementioned, ensure that all personnel working on a project or at a facility are qualified and trained to conduct the work in a safe, environmentally protective, and efficient manner.

4.5. Workers in Nuclear Facilities

In addition to the training stated in Sec. 4.4, training qualification requirements for workers in nuclear facilities are specified in training implementation matrices (TIM), in compliance with DOE Order 5480.20A. This ensures that workers and line managers attend the required training and qualification programs needed to perform their work in a safe, environmentally responsible, and efficient manner. TIM are owned by the facilities and managed by the Laboratory Training Integration Office.

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5.0. Requirements Processes that Support the Five Core Functions

The foundation of ISM is an organization structured according to the eight guiding principles, using the five core functions to perform work safely and in an environmentally responsible manner. There are a number of processes that are required to structure the organization and implement the use of the core functions in the workplace.

Sustained integration of management systems requires teamwork between and mutual understanding among all workers and managers. In turn, teamwork and mutual understanding depend greatly upon effective communication and interactions throughout the organization. Workers must have the means to improve the ES&H processes and requirements by communicating problems and solutions to their managers, and managers must be able to communicate decisions and directions to the workforce. LANL employs a variety of different formal and informal communication methods.

Vertical communications among different levels in the safety- and environment-responsible line-management chain must be effective two-way communication. Two-way communication means that information is passed up and down the hierarchy without distortion of intent and content. Lateral communication between members of a single organization and between different organizations promotes the sharing of experience, hazard recognition, and solutions to problems. To be effective, lateral communication also must be two-way. The Laboratory is committed to continually improving two-way communication. Making communication an explicit performance measure for manager's performance appraisals assists this commitment.

The Laboratory uses a standardized Checkpoint Survey tool to measure the effectiveness of communication throughout the Laboratory. This survey measures
(1) the communication of decisions to employees;
(2) if employees are sufficiently informed about mission and major issues;
(3) if employees have clear understanding of goals and objectives; and
(4) if managers seek employee opinions on important issues.

During the implementation of ISM, the measures have shown a definite positive trend. Communications still remain a concern of both workers and management.

Many communication processes and instruments exist at the Laboratory. Each of these grew from one or more often independent needs. ISM has provided consistent and coherent messages on ES&H requirements and expectations that can be used by all of the existing communication pathways. The following are some of these pathways:

- Laboratory Information Management (LIM) meetings (including Safety-First presentations)
- Organization/facility management or all-hands meetings
- Director's Town Hall Meetings
- All-manager meetings
- Safety committees

- Appendix F performance measures feedback
- All-employee memoranda
- ISM and Director's E-mail
- LIR points-of-contact
- Safety Concern Program
- Management Walk-arounds
- Daily Newsbulletin

Each of these has its own continuous improvement process. A perceived weakness is that some of these pathways do not provide adequate information from the message receiver to the sender. Continuous self-assessment of the implementation of ISM will help generate information on the specific weaknesses in these pathways that can then be improved. Where appropriate, these improvements will be tracked as part of sustaining ISM. There are a few of these communication pathways that deserve more description here, as they are likely to evolve only slowly from what they are now.

To allow ES&H feedback from workers, the Laboratory Director and the ISM Program Office both maintain e-mail addresses through which any worker can ask questions or provide ideas and suggestions. The Director's Office responds to all questions from either e-mail or from the town hall meetings. The ISM e-mail goes automatically to selected members of the ISM Steering Team for response or action.

To provide a means for two-way communication related to official institutional requirements or important safety information, the Laboratory has established a formal network of requirements points-of-contact (POCs) from each Laboratory organization. These POCs communicate between offices-of-institutional coordination (OICs) and their Laboratory organizations. Institutional ES&H requirements, as well as special information needing timely distribution in the form of urgent memorandums, alerts, and notices, are communicated via this channel.

ESH- 7, the Occurrence Reporting Group, issues regular and periodic lessons-learned communications. These cover both notable occurrences and information on trends. ESH- 7 also manages the Laboratory's Safety Concern Program and the ES&H Hot Line. The former provides an electronic means for any worker to communicate an ES&H concern and automatically assign its correction to their supervisor or other appropriate person. This program is similar to the Management Walk-around Program in that it is supported by an interactive database that allows any manager to identify, communicate, and assign corrective actions to appropriate workers.

The daily, on-line Newsbulletin covers a variety of special interest subjects, including ES&H. The bulletin also includes a Q&A section for two-way communication about topics of interest.

5.1. The Institutional Requirements System

Expectations, or standards, for the safe and environmentally responsible performance of work at the Laboratory are established at the institutional, facility, and activity levels and comprise the Laboratory's overall standards and requirements system. Institutional expectations are created by reviewing the work

throughout the Laboratory, then flow back as requirements to the facility and activity levels. Expectations that are specific to given activities or facilities are identified and added to the institutional expectations, as necessary, via prescribed institutional processes. This provides a layered set of requirements for all Laboratory work that consists of a sufficient combination of relevant institutional, facility, and activity requirements.

5.2. Historical Perspective

In the past, the Laboratory's contractual requirements were established with little consideration of the work, and institutional requirements were documented in a confusing array of administrative requirements (ARs) or a series of Laboratory standards (LSs), Laboratory procedures (LPs), Director's Policies (DPs), and other documents. There was no systematic flow of requirements from the contractual standards to work procedures. The system was based on paper copies distributed to a small set of document custodians, who attempted to keep their document set up-to-date and distribute copies to the end users. This resulted in an unwieldy system with inadequate document control, substantial inefficiencies, and lack of confidence that institutional requirements were effectively communicated and followed by workers.

5.2.1. Revising the Requirements System

A major revision of the entire institutional requirements system and document set began in 1996 with the adoption of the DOE's necessary and sufficient (N&S) process and a Labwide inventory of all institutional ES&H requirements documents. The N&S process resulted in WSS, an entirely new contractual-requirement baseline for the Laboratory. This change was part of the process of implementing the Laboratory's ISM System.

5.2.2. Transition to the New Requirements System

After the approval and inclusion of the WSS set in the UC-DOE contract, the Laboratory started an extensive and systematic effort to transition from the "old" internal requirements documents to the new system of LPRs and LIRs. The ISM guiding principles and core functions, and their application to the activity, facility, and institutional levels, were used to clarify the differing levels of requirement documents, and their interrelationships and interdependencies. As part of this transformation, the Laboratory prioritized the safety significance, regulatory status, and implementation needs of all existing and planned institutional-level ES&H requirements. Based upon this prioritization, the transformation to the new system has been divided into near-, mid-, and long-term needs, extending from 1998 to 2000. Most of the safety, environmental, and regulatory significant deficiencies were addressed in 1998, and the remainder were addressed in 1999

5.3. Work Smart Standards

The selection of standards that form the basis for the ES&H expectations at Los Alamos is required by contract clause 5.5-DEAR 970.5204-78 Laws, Regulations, and DOE directives of the UC-DOE contract, modified from 48 CFR 970.5204-78. The baseline institutional expectations for ES&H are identified through application of the DOE's WSS process. The standards selected by this process are in Appendix G of the UC-DOE contract. During 1997, the WSS process systematically considered the Laboratory's work and hazards and identified applicable standards that provide

protection to workers, the public, and the environment. These standards—all applicable laws, regulations, a number of DOE directives, and industry standards—were agreed to by the DOE and the Laboratory, with input from stakeholders, including the public. The initial Appendix-G standards were approved in September 1997 and became part of the UC-DOE contract in October 1997, replacing previous contractual requirements. Appendix G and most listed standards (ANSI standards are proprietary and currently unavailable in electronic format) were placed on the Laboratory's Web.

5.3.1. Revision to Work Smart Standards

A formal institutional change-control process that maintains, revises, and ensures the integrity and sufficiency of the Appendix-G WSS (and the flow down of supporting requirements) has been established (see LIR 301-00-00, "Managing Change Control of Laboratory Operations Standards and Requirements"). This process is implemented by agreement between the DOE and the Laboratory, with advice and concurrence of the UC. The Los Alamos ISM CCB serves as the WSS Convened Group (see Appendix D of this document), and recommends to the DOE Contracting Officer changes to the Appendix-G WSS set, based upon a formal review and communication process involving appropriate parties from LANL, DOE, and UC. The change process is coordinated and managed by the LSRP (Laboratory Standards Requirements Project) Office.

5.3.2. Relationship of WSS to Institutional Requirements

Figure 8 shows the flow down of institutional requirements from the UC-DOE contract through the Laboratory requirements to facility- and activity-specific requirements. This flow down is illustrated at the left of Fig. 8. The illustration at the right of the figure shows how the WSS, DOE orders, laws, and requirements found in Appendix G of the contract are divided into five focus areas for the creation of LPRs and LIRs. This illustrates the flow and connection of all Laboratory requirements from the contract to the work. A document that shows the traceability of ES&H WSS and other contractual requirements is available on the LANL Operations Requirements / Guidance home page, "Crosswalk – Work Smart Standards to LPRs / LIRs."

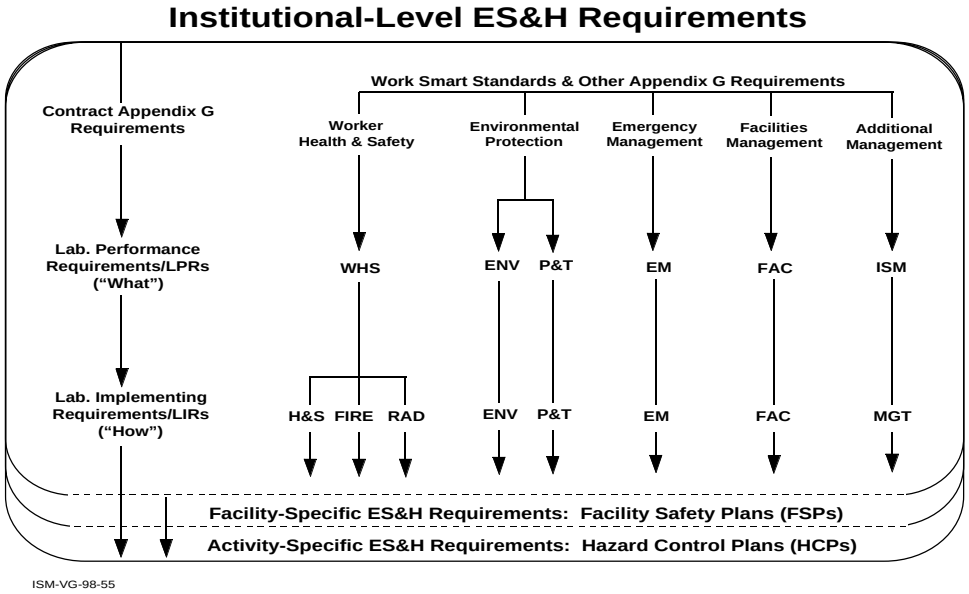

Fig. 8. The flow down of requirements from the UC-DOE contract to the work.

Institutional requirements listed in Appendix G are numerous, subject to interpretation, and not easily applied by workers. To make these standards usable in the workplace, the Laboratory established internal institutional requirements drawn directly from the Appendix-G standards. The highest level internal requirements are LPRs, which establish institutional performance expectations. LPRs directly reference mandatory Appendix-G standards. The performance expectations in LPRs include performance criteria that, when met, ensure the LPR and, hence, the WSS are met. Changes to LPRs follow the process cited in LIR 301-00-00. LPRs are grouped into six categories: worker health and safety, environmental protection, packaging and transportation, facilities management, emergency preparedness and management, and ISM.

Section 5.6.2 describes how the Laboratory is incorporating quality assurance into the institutional requirements. LPR 308-00-00, "Quality," specifies the Laboratory's approach to meeting its regulatory and contractual requirements in the quality arena. It identifies 10 quality criteria that (if applicable) must be satisfactorily addressed in all Laboratory standards, requirements, policies, and activities. As such, the scope of LPR 308-00-00 includes all work conducted at the Laboratory, regardless of whether the work is conducted in a nuclear or non-nuclear facility.

If management determines that there is sufficient reason to require consistency in implementation for meeting a performance requirement, the Laboratory issues an LIR, specifying the requirements that must be consistently implemented by all elements of the Laboratory to which the requirement applies. LIRs stem directly from the LPRs and provide detailed mandatory implementing requirements for the safe and environmentally responsible performance of work. Contents of the LIRs also derive from Appendix-G standards. The contents of the LIRs are the responsibility of safety function managers (SFMs) and cognizant OICs. SFMs are assigned for each major function area relevant to ES&H (e.g., occupational health and safety, radiation protection, fire protection, and environmental protection), and every LIR has an assigned OIC to coordinate input to its contents and ensure that it

is kept current. These OICs are responsible for ensuring that the LIRs cover the expectations contained in the Appendix-G standards and LPRs. Generally, the need for new or revised internal institutional requirements documents (LPRs and LIRs) is identified by the SFMs or OICs, who submit proposals to their line management and the LSRP Office.

In addition to LIRs, Laboratory implementation guidance (LIG) documents provide discretionary (i.e., non-mandatory) guidance, or good business approaches, relating to ES&H practices. LIGs are coordinated by the cognizant OICs and maintained on the Web as official Laboratory documents.

In special cases, Laboratory requirements and guidance can also be established and communicated throughout the Laboratory expeditiously via urgent memorandums, alerts, and notices. For example, when programmatic equipment service or maintenance was found to be not within the scope defined for LIR 300-00-01 "Safe Work Practices" or LIR 230-03-01 "Facility Management Work Control," a change was necessary to allow this type of work to progress. The urgent memorandums, alerts, and notices are similar in purpose, but vary somewhat in their urgency, distribution, and formality of purpose.

Requirements and a process were developed that use hazard-screening questionnaires to evaluate work hazards and still meet rigorous procurement requirements. In this process, the line-management chain requests the work, authorizes the work, and recognizes authorized technical representatives of vendors and suppliers as being a major contributor to the safe work on our premises. The ISM philosophy of work and worker being clearly identified and authorized is carried through. As required by LIR 301-00-01 "Issuing and Managing Laboratory Operations Implementation Requirements," this process was specifically called out as "Notice 10" and is published on the Web.

All LPRs, LIRs, urgent memorandums, alerts, and notices are official Laboratory documents and are published for workers and managers on the Web through the Laboratory Home Page.

5.3.3. Requirements Management Process

The Laboratory processes for developing, revising, documenting, communicating, maintaining, and managing LIRs, LIGs, urgent memoranda, alerts, and notices are established and described in detail in LIR 301-00-01, "Issuing and Managing Laboratory Operations Implementation Requirements and Guidance." This LIR is supplemented by LIG 302-100-03, "Guide for Developing Laboratory Operations Implementation Requirements and Guidance." The processes established in this LIR and LIG are managed and coordinated by the LSRP. As described earlier, LPRs and the overall institutional operational requirements hierarchy are managed through process described in LIR-301-00-00.

The SFMs or OICs solicit input from affected workers, the DOE, SMEs (subject matter experts, and other stakeholders, then draft and complete new or revised documents. Conflicts among different organizations are resolved via an established process of management review up through the DLD for Operations, as required. Upon final approval by the OIC's division-level line manager, new requirements

documents are placed on the Web by the LSRP and communicated to all Laboratory organizations.

The official record and listing of institutional ES&H expectations exist electronically on the Web under the "Official Documents" section of the Laboratory home page. In addition to LPRs, LIRs, and LIGs, there are listings of all ESH lessons learned, as well as forms and templates, such as Radiological Work Permit, Waste Profile Form, Crane Operator Safety Checklist, and Unreviewed Safety Question Determination and Screening Worksheet. When the transition to LIRs is complete, all valid permits will be required by at least one LIR. Only institutional requirements documents residing on the Web are official Laboratory requirements.

5.4. Activity-Level Processes: Work Control

The Laboratory uses safe work practices (LIR 300-00-01), facility management work control (LIR 230-03-01), and "Notice 10" to establish minimum expectations for the control of activity-level work. A Labwide approach requires that all work be authorized by line managers or supervisors based on the level of risk and the reliability of the hazard control system. Similarly, workers are authorized to engage in work based on management's acceptance of their knowledge, skills, and abilities to conduct work safely and in an environmentally responsible manner within the authorized hazard control system.

At the activity level, the scope of the work may be narrowly defined to encompass only a specific task or generically defined to include a class of activities or hazards. The workforce establishes and incorporates activity ES&H expectations using the first three core functions: define the scope of the work, analyze the hazards and associated environmental impacts, and develop and implement the controls. Safety- and environment-responsible line managers authorize work only after the first three functions have been completed. Safety- and environment-responsible line managers must know their employees' work and control systems sufficiently to be satisfied that the work can be authorized and is within their employees' competence. Formality, rigor, and the extent to which employees perform the three functions are determined by line management and are commensurate with the magnitude and uncertainty of the risks. The DOE may be involved in authorizing Laboratory work if they and the Laboratory agree that an authorization agreement is appropriate (see Sec. 5.5.6, Table 1).

Research and General Office Work

LIR 300-00-01, "Safe Work Practices," establishes the institutional process to be followed by all line management organizations for establishing activity-specific safety and environmental expectations. This LIR establishes requirements for the authorization of work and the workers, based upon a formal process for defining the work, analyzing its safety hazards and potential impact to the environment, and identifying and establishing appropriate controls. The LIR, along with its companion LIR 300-00-02, "Documentation of Safe Work Practices," also establishes the institutional requirements for documenting activity-level safety analyses and controls. Such analyses and controls are to be documented in HCPs.

The safe work practice process establishes three levels of rigor in the authorization of the work and workers. These levels are tied to the management level of authority

necessary to authorize work, depending upon a combination of the risks and hazards before and after controls are applied. For example, activities with higher associated risks must be reviewed and authorized by division-level line management, while lower risk activities can be authorized at commensurably lower management levels. Higher risk activities also require peer and/or subject matter expert reviews prior to authorization. As part of the safe work practices process, the safety- and environment-responsible line-management chain must identify relevant institutional and facility expectations (including environmental objectives and targets) and incorporate them as part of the activity-level controls, including the use of Laboratory permitting systems and processes.

Facilities that support the performance of work have established operating limits and safety envelopes, as described in the FSPs. Through these and Facility-Tenant Agreements, facilities communicate their facility-specific expectations for the safe and environmentally responsible conduct of work, and may establish specific requirements for inclusion in the safe work practices review process.

Facility Work Activities

Facilities and facility work are defined in LIR 230-03-01, "Facility Management Work Control." FMs directly manage facility work, which covers all activities involved in the construction and maintenance of the constructed environment and other physical assets of the facility. The FM through their organization follows the established institutional processes defined in the LIR for the management and control of such work. The LIR establishes, for example, a hazard analysis process to be followed for all facility work. LIR 402-10-01, "Hazard Analysis and Control for Facility Work," describes the process. The processes for authorization of work and the close out of the work are defined in LIR 230-03-01.

5.5. Facility-Level Processes

5.5.1. Facility Management

All Laboratory space, including land, physical structures and facilities, is assigned to owning DDs and becomes part of an FMU. An FMU can include multiple facilities, buildings, other structures, and large areas of land. In some cases, several FMUs may be grouped into facility management zones to share necessary ES&H and maintenance resources.

Each FMU has a facility management team that provides the infrastructure, processes, and resources required to effectively support its unique needs. For each facility or building within an FMU, the facility management team works with tenant organizations to establish facility-specific ES&H expectations. Facility expectations comprise defined limits, boundaries, and facility processes to ensure that the current ES&H capabilities of the facility (commonly referred to as the facility operating limits or safety and environmental envelope) are not exceeded and that regulatory requirements and institutional expectations are met. They also establish the requirements for interfaces among tenants, the facility management team, and support organizations.

The implementation of relevant institutional requirements is the responsibility of the safety- and environment-responsible line-management chain. In practice, this applies to both facility and operating organizations. Facility owning DDs and their facility management organizations are responsible for implementing the management LIRs that define facility expectations and for implementing the LIRs for the facility activities that they perform.

5.5.2. Facility-Tenant Agreements

Facility-Tenant Agreements are defined in LIR 250-02-02 and LIG 250-02-02, "Facility-Tenant Agreements." The purpose of the Facility-Tenant Agreement is to formally establish and help ensure mutual understanding of the safety and environmental roles and relationships between the facility management organization and the tenants doing work in the facility. Facility-Tenant Agreements are written for all Laboratory facilities, and completion of the agreement is the responsibility of both the FM and the tenant organization.

5.5.3. Facility Safety Plans (FSPs)

The FSP is the primary mechanism to help FMs establish, document, and integrate facility-level expectations. The purpose of an FSP is to systematically evaluate and document the work in a facility, its hazards, and the facility-specific controls from the standpoint of the facility-wide operating limits. The institutional requirement for FSPs is established here and in clause 5.14 of the UC-DOE contract. LIG 240-01-10, "Facility Safety Plans," provides additional institutional guidance.

Establishing and documenting the FSP is the responsibility of the facility owner and is usually delegated to the FM. Consistent with the process for establishing institutional expectations, establishing the FSP begins with understanding the work and its hazards; involves the people doing the work, SMEs, and appropriate stakeholders; is tailored to the work; incorporates applicable external standards; and complies with applicable statutory requirements.

The FSP describes the collective work of an FMU (or facility, building, or other subset, depending upon the hazards). Within the plan, the FM analyzes a facility's hazards and environmental aspects and identifies facility-specific expectations and controls to effectively manage risks (i.e., fulfills the first three core functions). The FSP contains a definition of the facility's ES&H safety and environmental envelope and a description of the facility's administrative and engineering controls. It includes and is consistent with institutional expectations (i.e., LPRs, LIRs**,** LIGs, Laboratory forms and templates, and other institutional requirements).

Given the dynamic quality of experimental operations, it may be necessary for FSPs to incorporate mechanisms for the selective review of hazard control plans to ensure that work stays within facility operating limits and safety envelopes.

The FSP may be a single document with appropriate references or a compilation of other applicable documents, such as Facility-Tenant Agreements, facility procedures and manuals, safety analysis reports (SARs), facility permits, emergency plans, waste management plans, pollution prevention plans, quality management plans, tenant operating envelopes, and conduct-of-operations plans. The FSP and any other documents or permits that govern work in the FMU form the authorization

basis of that FMU. The level of detail of the work description, the rigor of hazard analyses, and the nature of required facility processes and controls in an FSP document are consistent with Laboratory criteria and are commensurate with the magnitude of the hazards associated with the facility.

FSPs have been developed for all Laboratory facilities and were in effect by December 1998.

5.5.4. Facility Safety Plan Levels of Rigor

Two distinct levels of rigor exist for FSPs: one for facilities requiring authorization agreements with the DOE and another for those that do not. The former FSPs reflect much more extensive analysis and formality of operations, consistent with the magnitude of underlying hazards. Many of these facilities are also nuclear and radiological facilities, requiring the application of special management LIRs and associated Appendix-G standards. FSPs for non-nuclear facilities are appropriate to the non-nuclear hazards and associated risks, but generally do not require separate authorization agreements with the DOE.

For nuclear or higher hazard non-nuclear facilities, an FSP may include DOE-prescribed requirements, such as final safety analysis reports (FSARs), technical safety requirements (TSRs), safety analysis documents (SADs), or unreviewed safety question determination (USQD) programs. Alternatively, facilities having only lower hazard activities may have short FSPs that mainly reference institutional programs or a few facility-specific documents, such as emergency evacuation plans.

5.5.5. Changing Facility Safety Plans

The FSP also addresses how the expectations are maintained and establishes mechanisms to ensure modification of the FSP, as appropriate, when work or hazards change. Maintaining expectations may include processes such as Facility-Tenant Agreements and FM-support agreements; review of HCPs; surveillance requirements (SRs); change control; configuration management; and assessments. The FSP addresses the means for identifying changes in activities or facility conditions and associated hazards that could result in a need to modify expectations established in the FSP. It may also address processes for allowing exemptions to the FSP or other changes based upon input by workers, experts, or stakeholders. For nuclear facilities, modification may include the USQD process, as appropriate.

Except when covered by an agreement with a regulatory party (e.g., regulatory permits or authorization agreements, discussed below), the FSP and referenced documents —but not institutional expectations—can be changed at the discretion of the owning DD. Proposed changes or interpretations are submitted in writing by any member of the workforce to the facility-owning director. Disagreements regarding the ES&H expectations in the FSP shall be resolved within the supervisory chains of the owning DD and the organization proposing the change. Ultimately, the facility owner has the authority to determine facility-specific requirements in the FSP consistent with Laboratory guidance. In addition to ongoing changes, the FSP and referenced documents shall be systematically reviewed and updated at least every 3 years by the owning DD designee.

5.5.6. Authorization Agreements

The majority of Laboratory work is authorized by the prime contract between UC and DOE. However, in some cases, the Laboratory and DOE mutually agree to special authorization agreements for certain facilities or activities. Such agreements specifically authorize work associated with these facilities and activities. The agreements between DOE and the Laboratory identify (sometimes by reference) the risks and associated mitigation measures required for authorizing the facility or activity. The Laboratory's facility-owning DD and the DOE determine the conferring parties and basis for the authorization agreements. Appendix B provides a list of facilities and operations that currently require authorization agreements. The will monitor AA progress, coordinate with DOE, and provide assistance, as requested by DOE, the FM, or the owning DD.

All activities and facilities not listed in Appendix B are authorized by the Laboratory pursuant to its approved ISM system. Future work or significant changes to existing work at Los Alamos will be assessed by Laboratory facility owners, based upon criteria given in Table 1. The criteria in Table 1 are used to determine if separate authorization agreements are needed, based on the potential consequences of an adverse event. For work with consequences within type-A, the facility owners may decide that the processes in the ISM system are adequate to authorize the work. For work assessed to have potential impacts within type-B or -C, the Laboratory and DOE must meet to decide whether or not an additional authorization agreement is needed or whether the basic agreement on the ISM system is sufficient. The owning DD is responsible for making the determination that a discussion with DOE is required.

Table 1. Decision criteria for authorization agreements.

Internal to LANL				
Type	**Consequence Description**	**Basis for Authorization**	**Conferring Parties**	**Authorizing Officials**
A	**Worker**: Any impact up to and including individual fatality **Member of public**: Rad - no potential for exposure beyond regulatory limits; CHEM - no potential for exposure greater than ERPG - 2 **Environment**: Completed NEPA requirements show no mitigative actions required **DOE Property**: Survey and clean **Perform Mission**: Recoverable schedule delay, costs covered by existing funds	Application of industrial standards that are selected and tailored by LANL's ISM System	Facility owner and tenants	Facility owner
DOE Involvement: For types B & C, the DOE and the Laboratory must meet to decide whether or not an additional authorization agreement is needed, or whether the basic agreement on the ISM System is enough.				
Type	**Consequence Description**	**Basis for Authorization**	**Conferring Parties**	**Authorizing Officials**
B	**Worker:** Mass casualties / fatalities **Member of Public**: RAD - potential for exposure beyond regulatory limits; CHEM - potential for exposure greater than ERPG - 2 **Environment**: Completed NEPA requirements determine that mitigative actions are necessary **DOE Property**: Renovation required **Perform Mission**: Greater than 1 year on hold	Formal authorization agreements identifying NEPA mitigative actions and controls based upon analysis of the work and hazards, standards which the controls must meet, and operating limits additional to any already specified in the ISM System	LANL, LAAO, and DOE Programmatic units	Determined by the conferring parties

Table 1. Decision criteria for authorization agreements. (cont.)

Type	Consequence Description	Basis for Authorization	Conferring Parties	Authorizing Officials
C	**Worker:** Mass casualties / fatalities **Member of Public**: RAD - potential for exposure beyond regulatory limits; CHEM - potential for exposure greater than ERPG - 2 **Environment**: Completed NEPA requirements determine that mitigative actions are necessary **DOE Property**: Could never occupy **Perform Mission**: Canceled	Formal authorization agreements identifying NEPA mitigative actions and controls based upon analysis of the work and hazards, standards which the controls must meet, and operating limits additional to any already specified in the ISM System	LANL, LAAO, ALO, and DOE Programmatic units, and other stakeholders as determined by LANL and DOE	Determined by the conferring parties

5.6. Institutional-Level Processes

Institutional expectations apply Labwide to the entire workforce. These expectations derive from statutory requirements, contractual agreements between UC and DOE, consensus standards, and Laboratory practices. Contractual ES&H agreements between UC and DOE are based upon standards identified jointly by DOE, the Laboratory, and, as appropriate, by other stakeholders. The Laboratory commits to full compliance with all applicable federal, state, and local laws and to regulations and contractual obligations, unless formal relief is obtained from the cognizant agency.

At the institutional level, Labwide ES&H expectations are established using the DOE's WSS process. This yields a set of UC-DOE contractual work standards. The contractual standards are included, by reference, in the UC-DOE contract. Changes to the UC-DOE contractual set of work standards are subject to DOE (and possibly other stakeholder) negotiation and approval.

5.6.1. Technical and Management Requirements (LIRs)

Laboratory requirements generally fall into two major categories: those that establish required management processes and those that establish technical requirements or specific hazard controls.

Management LIRs establish mandatory processes to be used by Laboratory line organizations, facilities, and Laboratory workers. These include formal processes used throughout the Laboratory for establishing the expectations and requirements at the facility and activity levels. Examples include the LIRs that establish Labwide requirements for Facility-Tenant Agreements, facility work control, and safe work

practices. These management LIRs define the explicit institutional consistency, formality, and rigor needed for establishing facility- and activity-specific expectations. This also allows for expectations established at these levels to be appropriately tailored to meet the specific needs of widely disparate facilities and activities. Management LIRs also establish institutional requirements in other areas, such as occurrence reporting, the development and maintenance of safety basis documents for nuclear facilities, and hazardous waste management.

LIRs that establish technical requirements identify and prescribe explicit administrative or engineered controls for specific hazards. The required controls are mandatory anywhere throughout the Laboratory where the related hazard exists as part of the work activity. For example, technical requirements LIRs might establish specific controls that are necessary for high-radiation areas or confined-space entry. Some technical requirements also establish specific performance criteria for controls; e.g., HEPA filters must be 99.999% efficient or hearing protection must reduce the sound level to a specific value at the eardrum.

5.6.2. Application of the Quality and Formality of Operations Criteria

LPR 308-00-00 specifies the Laboratory requirements for meeting its regulatory and contractual requirements for quality. The LPR identifies the 10 quality criteria that (if applicable) must be satisfactorily addressed in all Laboratory standards, requirements, policies, and activities. The scope of LPR 308-00-00 applies to all work conducted at the Laboratory, whether or not the work is conducted in a nuclear or non-nuclear facility.

LPR 308-00-00 constitutes the quality management plan for the Laboratory. Organizations, programs, projects, and activities may, at the discretion of management, choose to develop sub-tier quality management plans for their own operations that further elaborate on the requirements of the 10 criteria of LPR 308-00-00. Alternatively, management may choose to develop its operational documents (e.g., procedures, work instructions, etc.) directly against the criteria of LPR 308-00-00. Regardless of the implementation approach, management will employ a risk-based graded approach to applying the criteria of LPR 308-00-00 to its organizations, programs, projects, and activities.

LPR 308-00-00 serves as the quality umbrella document for all LPR and LIR documents. All such documents must explicitly address the applicable requirements of LPR 308-00-00. Furthermore, all new or modified LPRs and LIRs are subject to an independent review to determine whether the 10 criteria of LPR 308-00-00 have been adequately met, and organizations that draft or modify LPRs and LIRs must take steps to ensure that review findings are adequately addressed prior to publishing the LPR or LIR.

The Laboratory is committed to performing its work with a formality commensurate with the risks of its work. The degree of formality is derived from the philosophy contained in the DOE Order 5480.19, “Conduct of Operations Requirements for DOE Facilities.” We placed into our contract an LPR whose performance criteria encompassed the philosophy of 5480.19. We found that the emphasis on “facility operations” in 5480.19 and our placement of the derived performance criteria in a Facility Management LPR is slowing progress in achieving the proper level of formality in all operations. The Laboratory with the DOE has formed a focus team

to craft a new LPR titled "Formality of Operations" to be included in the WSS set upon confirmation by the ISM Change Control Board. At that time the existing Facility Management LPR will be removed from the WSS set and will be modified to remove the unnecessary criteria.

With the issuance of the Formality of Operations LPR we will implement it in the same manner as the quality LPR (308-00-00). There will be a crosswalk of the performance criteria to the other LPRs and LIRs that will be maintained up to date. If the crosswalk identifies any necessary additions to our LPR/LIRs these will be made using the Laboratory Standards and Requirements Project processes. All new or modified LPRs and LIRs will be reviewed to assure the criteria of the Formality of Operations have been adequately met before issuance.

5.6.3. Offices of Institutional Coordination

The Laboratory assigns an OIC for each LIR. The OIC is normally the Laboratory group or office responsible for establishing, coordinating, and supporting the implementation of a requirement and any associated guidance. When requested, the OIC shall provide consistent subject matter expertise to Laboratory organizations in interpreting and meeting requirements contained in standards, laws, and regulations that are promulgated as requirements in the LIR(s) they are assigned. The LSRP maintains a current list of OICs and their assigned LPRs, LIRs, and LIGs.

5.6.4. Points of Contact

Per LIR 301-00-01, each DD appoints a POC who acts on behalf of their organization to coordinate communication on institutional requirements among the organization the OICs and the LSRP.

The POCs determine and communicate to the LSRP Office the organizational relevance, or applicability, of institutional requirements. If an organization's work does not involve the hazards or directly relate to the subject of the Laboratory requirements, then the requirements are not relevant to that organization. Nuclear facility requirements, for example, do not apply to the administrative building. The POCs solicit input for creation and revision of requirements, communicate new requirements to appropriate parts of their organization, and monitor and "self-report" the implementation status of all LIRs applicable to their organization.

5.6.5. Work for Others (WFO)

WFO is work that is sponsored by a funding agency other than the DOE, including other government agencies and private industry.

ISM and the Laboratory ES&H requirements that flow from Appendix G of the UC-DOE contract apply to WFO and work for DOE with the same force and effect. WFO activities must meet all applicable institutional, facility, and activity requirements. The appropriate line management chain is responsible for the safe and environmentally responsible performance of work. Classification of a program shall not shield the activity from working within the Laboratory's safety and environmental management system. Work that cannot be performed safely and in an environmentally responsible manner will not be started, and work that is not being done within the safety and environmental requirements will be stopped and

restarted only after appropriate upgrade and review of the safety and environmental systems.

5.6.6. Exceptions and Changes

The Laboratory has a formal process by which organizations can obtain exceptions or variances to Laboratory requirements. This process is defined in LIR 301-00-02, "Exceptions and Variances to Laboratory Operations Requirements." Given valid justification, organizations can obtain written exception or variance from established institutional requirements as long as equivalent or compensatory measures are in place. Exceptions and variances must be approved by the cognizant OICs and their division-level line manager.

Requirement documents not specifically listed in Appendix G can be changed at the discretion of the Laboratory. Proposed changes or interpretations of institutional expectations (LPRs, LIRs, or LIGs) can be submitted in writing by any member of the workforce through their organization's POC to the appropriate OICs. For those LPRs and LIRs that are listed in Appendix G, changes must also be accepted by DOE through the WSS closure process and the contract modification process.

5.7. Applicability and Implementation of Requirements

LIR 301-00-01 requires that POCs declare which LIRs are applicable to their division and when the applicable LIRs are implemented. POCs also must notify the LSRP when a notice has been received, indicating that if requirements are stated and applicable, they will be implemented. For POC declarations to be meaningful across the institution, the definitions of applicability and implementation must be understood and applied uniformly.

An LIR is applicable in an organization if it covers work, including administrative tasks, being performed by anyone in the organization. This means that the managers and supervisors of an organization must have a thorough understanding of the work performed by every individual and a thorough understanding of the Laboratory's requirements. The understanding of the work can be derived from authorization basis documents, Facility-Tenant Agreements, FSPs, or work inventories required in LIR 300-00-01, "Safe Work Practices." It is the responsibility of the POC to understand the content of the Laboratory requirements and make the necessary connection with the work being performed. It is the responsibility of the DD to assess both the performance of the POC in making the determination and the organization in meeting the Laboratory requirement.

An LIR is implemented within an organization if the work, including administrative tasks, is performed according to the requirements of the relevant LIR(s), or an exemption or variance has been granted (per LIR 301-00-02) to perform the work to another suitable requirement. This means that the individuals performing and managing the work are aware of the LIR(s) and understand and meet the work requirements.

Institution-wide implementation is achieved when all organizations have established and consistently employ work practices that meet the requirements of

the applicable LPRs and LIRs, and any deviations have been approved through the formal LIR change process. A satisfactory level of implementation can include some local defects and opportunities for improvement. Some of the requirements are new, so deficiencies may not be evident until implementation is attempted. There may be individual cases of noncompliance, but these should not show a systemic nonconformance to the institutional requirements.

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6.0 Self-Assessment Processes that Support the Five Core Functions

6.1. Confirming Readiness

Confirming readiness ensures that all necessary actions are complete prior to performing work. Depending upon the hazards, confirmation may range from relatively informal walk-downs by appropriate members of the supervisory chain to formal readiness assessments performed jointly with DOE.

Line management observes the activities of the workforce to ensure they meet activity, facility, and institutional expectations. This includes assessing results, identifying process improvements, taking effective corrective actions, and sharing lessons learned. Owning facility directors ensure that work within their facility meets facility and institutional expectations.

6.2. Assessing Results

The fifth core function, ensure performance, confirms that work is performed safely to expectations and in an environmentally responsible manner. Ensuring performance at LANL is principally attained through self-assessment. Self-assessment activities include all internal reviews of performance by either Laboratory workers or contractors. These activities include (1) reviews by personnel independent of the work and the organizations reviewed; and (2) evaluations by line and support personnel of their work. Assessments to ensure performance involve a variety of activities, including collection of feedback, evaluation of incidents and deviations from expectations, corrective actions in response to incidents and deviations, identification of improvement opportunities, and reinforcement of desired behavior. Performance assurance activities may be accomplished through mechanisms, such as performance assessments, audits, workplace observations, and performance measurements. These mechanisms also include processes to ensure performance data are analyzed and lessons learned are shared with other Laboratory organizations. The Laboratory workforce monitors its work, assesses the results, and identifies and implements needed improvements at the activity, facility, and institutional levels to ensure that work performance meets expectations.

Laboratory assessments, including self-assessments, are done by line management and workers, facility owners, SFMs, support organizations, and the AA Office. The objective is to understand the behaviors and processes that support ES&H performance expectations. The assessment process helps preclude major unexpected ES&H occurrences by enabling continuous ES&H improvement and showing when corrective actions are needed. Assessments are based upon methods and measures selected by and tailored to meet the needs of the assessing and the assessed organizations. Assessment measures determine the degree to which expectations are met, corrective actions are completed, occurrences are investigated, and other performance indicators. Assessment results are documented and reported to the cognizant line managers, who take appropriate corrective actions.

6.2.1. Internal Self-Assessment Process

As a result of the institutional commitment to continuously improve ISM, LANL reevaluated its approach to self-assessment with the intent to progress to a more

holistic safety management system. The intensive evaluation determined that the Laboratory's existing "as is" self-assessment activities were fragmented and did not provide a clear systems perspective on ISM performance. A focus team of line managers, facility managers, and self-assessment process owners was established to develop a more integrated "should be" process for line and functional self-assessments to:

- Improve coordination of ISM performance assurance efforts to achieve greater effectiveness, and
- Provide managers and workers better feedback on ISM to drive improvement.

Using benchmarks from both private industry and the DOE complex, an integrated self-assessment program was developed that provides a closed-loop, systems framework of approach deployment results.

A summary of LANL's integrated self-assessment process is reflected in Figure 9.

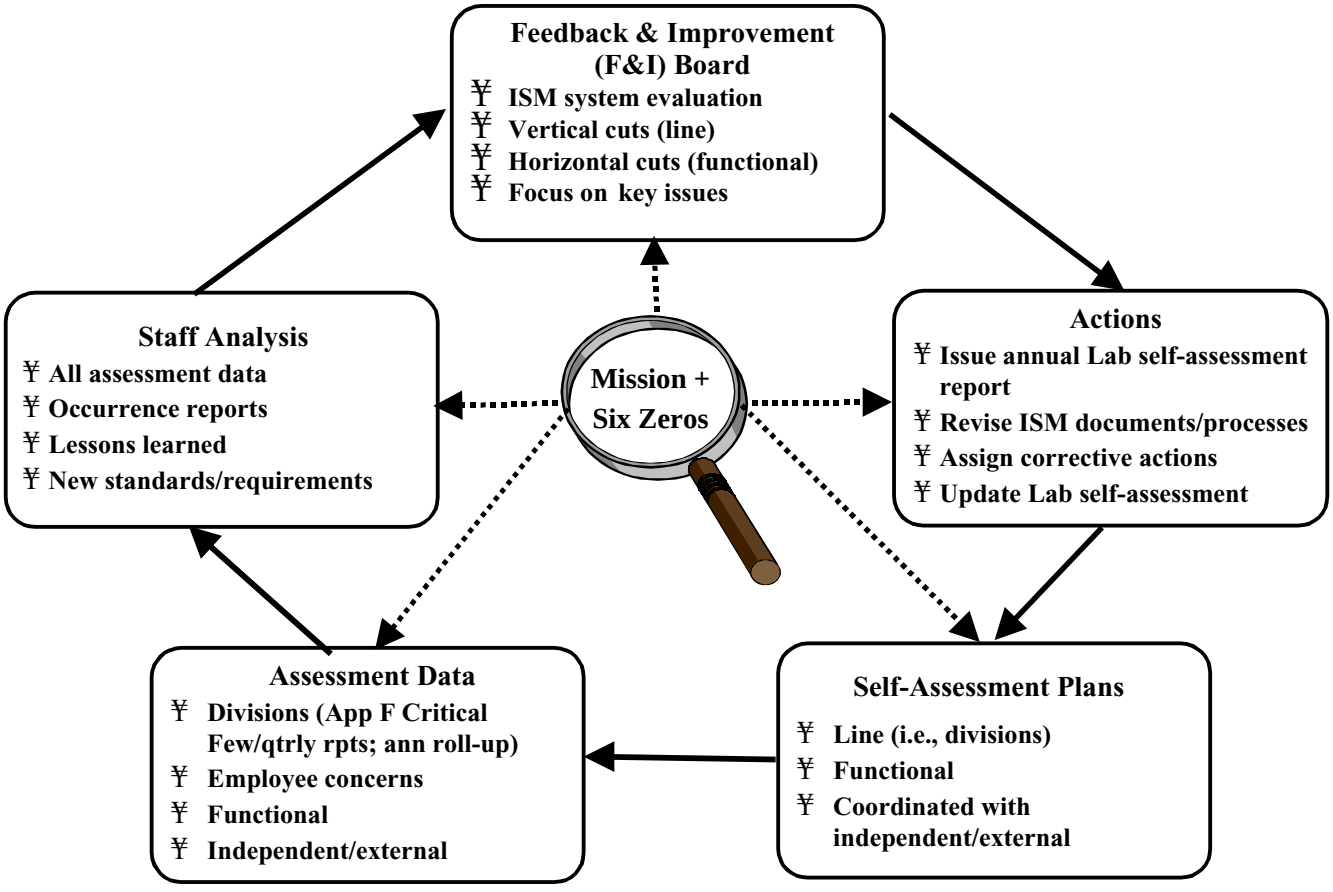

Fig. 9. Summary of LANL's Integrated Self-Assessment Process

There are three key elements to the process:

- The Feedback and Improvement (F&I) Board

- The annual institutional self-assessment plan, which results from the decisions and the actions of the F&I Board.
- Divisional self-assessment plans, which supports the institutional plan.

Feedback and Improvement (F&I) Board

In confirmation of line management's ownership of safety, the cornerstone of LANL's self-assessment process is the F&I Board, which is comprised of five line division and program directors and three ex-officio members (the ES&H division director, the AA office director, and UC's ES&H director).

The F&I Board acts as the institutional management body of the Laboratory's self-assessment process. Using the graded approach to risk management and incorporating the Laboratory's goals, the Board's responsibilities include:

- Establish the institutional self-assessment plan
  - — Determine institutional self-assessment priorities.
  - — Establish line and functional self-assessment schedules.
  - — Monitor Key measures quarterly.
  - — Validate / re-establish institutional self-assessment priorities annually.
- Review results of division self-assessment reports.
- Review / refine annual institution self-assessment report.
- Report quarterly on performance to line management (via OWG, LIM, SET, etc. as appropriate).
- Oversee LANL's issues management program.
  - — Assign responsibility for corrective actions / follow-up.
  - — Monitor corrective actions closure and sharing of lessons learned and noteworthy practices.
- Communicate with and make recommendations to DLDOPs / SET.
- Effect / influence / implement change and improvement.

Annual Institutional Self-Assessment Plan

The annual self-assessment plan developed by the F&I Board is a key part of improving LANL's feedback and improvement process for ISM. It provides the higher level direction for the divisional self-assessment plans. The plan will be reviewed and approved by the ISM program manager and presented to the ISM Change Control Board. This plan will:

- Document and communicate institutional self-assessment priorities and institutional expectations for line self-assessments.
- Ensure consistent performance assessment across the Laboratory.
- Identify internal functional self-assessments to be conducted, using risk management to set assessment frequency.
- Enable effective assessment resource planning by
  - — Establishing annual schedule for internal line and functional self-assessments.
  - — Communicating internal, independent self-assessment schedules.

Annual Division Self-Assessment Plans

The integrated self-assessment process provides divisions the ability to balance institutional and division safety priorities that are meaningful and value-added to both the institution and the line. The division self-assessment plan will be incorporated into the division's ISM Description Document.

Division responsibilities under the integrated self-assessment process are to:

- Establish an annual division self-assessment plan that includes institution *and* division priorities. The plan will:
  - Use the graded approach based on risk analysis applicable to work being performed by the division.
  - Assure that key ISM mechanisms are being effectively implemented.
  - Confirm that WSS, AB/FSP, Facility-Tenant Agreements, FMWC, and SWP are in place, working, and feedback loops exist.
  - Verify compliance with applicable laws and regulations.
  - Publish division self-assessment schedule.
- Report results of self-assessment annually.
  - Identify applicable corrective actions.
  - Share lessons learned and best practices.
  - Publish division self-assessment schedule.
- Assess and report performance quarterly on key measure and issues
- Update division's ISM Description Document annually.

The Laboratory's integrated self-assessment process is in the early phases of implementation. It is a work in progress that will evolve to an assessment system that will ensure the effectiveness of ISM in creating a safe work environment.

6.2.2. Safety and Environmental Assessments

SFMs have been appointed for facility management, worker safety, fire protection, emergency management, radiation protection, management systems, environmental protection, and P&T. SFMs are SMEs who are responsible for assessing and reporting semi-annually on the performance of the institution in their areas of expertise. They evaluate ES&H performance across the Laboratory and then identify and develop opportunities for improvement in areas where deficiencies are found. The SFMs' reports are sent to the Laboratory Director semi-annually and to AA-2 for development of a comprehensive summary of the Laboratory's ES&H performance.

Safety and environmental discipline assessments (e.g., radiation protection, industrial hygiene, waste handling and management) are performed by ESH to evaluate the implementation and effectiveness of institutional expectations. Normally, safety and environmental discipline assessments include observations by deployed personnel and the results of line and facility assessments. These assessments are coordinated with line and facility assessments to avoid duplication.

Safety and environmental self-assessments are performed by operating and facility-owning divisions, and program offices. These are self-assessments of each organization's ES&H performance. Division safety and environmental self-assessments are sent to the Laboratory Director quarterly.

6.2.3. Institutional Level Audits and Assessments

AA provides the Laboratory with reasonable assurance through assessments and evaluations that Laboratory operations are continuously improved and compliant with internal and external requirements.

AA-2 evaluates the Laboratory's implementation of environmental protection, safety, and health; quality assurance; and facility management expectations. An independent evaluation of the performance assurance activities of the assessed organization is emphasized.

AA evaluates the Laboratory's ES&H performance assurance process and periodically analyzes ES&H function performance and provides a comprehensive, integrated summary of the Laboratory's ES&H performance to the Laboratory Director. AA-2 is the OIC for independent, internal assessments and is responsible for the development and implementation of the internal independent assessment program.

Independent organizations, such as AA, help ensure performance by assessing OICs, facilities, and line organizations for performance relative to institutional expectations (including performance assurance expectations); analyzing results; identifying improvements; and reporting results to appropriate management.

An additional and important role for AA is to coach line management on (1) how to conduct effective self-assessments, and (2) how to perform real-time evaluations of some self-assessments.

6.2.4. UC-DOE Contract Appendix F

Performance in ES&H at LANL is tracked and assessed through the use of performance measures, which provide agreed-upon objectives, measures, and targets for ES&H performance. At Los Alamos, performance measures are defined jointly by the Laboratory, DOE, and UC and are added to Appendix F of the UC-DOE contract. Success in achieving the objectives defined by Appendix F and the performance measures depends upon the effectiveness and implementation of the expectations established at the activity, facility, and institutional levels.

Laboratory performance is evaluated against the Appendix-F measures through a number of internal and external processes. The Laboratory safety and environmental self-assessment process is defined in LIR 307-01-01, which outlines the requirements for quarterly internal performance reviews and line management self assessments reports relative to the Appendix-F measures. Follow-up actions taken by management to improve safety performance and meet targets established in the measures.

In addition, quarterly performance reports are send to UC and DOE. Twice yearly, senior managers meet with UC and DOE to discuss key metric performance and describe action being taken to improve systems and programs. Annually, the

Laboratory, UC, and DOE each develop comprehensive assessments of the Laboratory's Appendix-F performance.

6.2.5. Stakeholder Assessments

DOE, NMED, and other regulatory authorities provide ES&H oversight of the Laboratory. This oversight includes routine on-site DOE representatives and periodic audits and reviews. The UC ES&H Advisory Panel and the external ESH-Division Review Committee also provide ES&H oversight. Laboratory self-assessment results, not including the management walk-around data base are provided to DOE and other external reviewers, as appropriate.

6.3. Issues Management and Corrective Actions

The Laboratory maintains issues management and corrective processes to ensure that important issues (internal and external) are captured and resolved. This includes the Issues Management Tracking Database I Track, which is used throughout the Laboratory to evaluate and prioritize the issues, assign the issues for resolution, track the corrective actions to completion, verify that the completed actions resolved the issue, and communicate lessons learned. Line management is ultimately responsible for tracking and correcting all ES&H issues. Support and facility management may track and correct issues relating to institutional and facility levels. Issues are prioritized and resources are allocated for corrective actions based upon formal or informal cost / risk / benefit analyses. Issues management and corrective actions are evaluated as part of Laboratory assessments.

6.3.1. Incident/Injury/Near-Miss Investigation

The Laboratory recognizes the value of feedback from operating experience to improve performance and is committed to fostering a "reporting culture," where incidents, injuries, and near misses are valued as a source of important data to analyze and educate.

Abnormal events and workplace conditions that could affect the safety of the worker, the public, the environment, or operational integrity are identified and critiqued in a process coordinated by FMs, involving activity-level line managers and institutional service organizations, as appropriate.

The Laboratory complies with criteria for recordable injuries, as well as reportable occurrences, but also maintains near-miss and safety-concern reporting. Involved workers, supervisors, and managers come together with safety and environmental protection experts under coordination of the responsible FM (1) to evaluate, or critique, the event, and (2) to determine causes, corrective actions, and lessons learned. Results of the analysis are tracked in the appropriate system to ensure corrective actions are closed and data are systematically available for trending.

Reportable occurrences and recordable injuries are the subject of periodic self-assessments by line management, both as landlords of facilities and as the safety chain of command for certain tenants. SFMs assess the same data on a cross-cutting, or Labwide, basis to ensure institutional issues are identified. ESH personnel maintain various communication tools to support management and supervisors.

6.3.2. Safety Concern Program

The Safety Concern Program is a significant part of ISM. A safety program can be effective only with the full participation of the workers—the Laboratory's front-line experts in workplace safety. For this reason, the Laboratory has encouraged full participation in the program.

The Safety Concern Program is a no-fault partnership between Laboratory workers and their managers to record and resolve safety and environmental concerns. Anyone with an active Z-number at LANL, including UC employees, contractors, students, and affiliates, may access the Web site and enter a concern or suggestion.

At the heart of the new Safety Concern Program is the Safety Concern System database. Concerns are entered on the Web site and sent electronically to the submitter's manager, who then evaluates the concern, involves the appropriate supervisors and ES&H personnel, and implements suitable corrective actions. Anonymous concerns are submitted to the ES&H Hotline and handled in confidence by the hotline staff.

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7.0. Safety- and Environment-Responsible Behavior

7.1. Introduction

The primary incentive for safety is the moral imperative for protecting people and the environment. ISM provides elements for the external reinforcement of safety- and environment-responsible behaviors.

Safety- and environment-responsible behavior, as discussed here, relates to safety as a value, a system of personal accountability, application of positive and negative reinforcement, and alteration of perceptions that influence workforce behaviors. This broadens the commonly used term "behavior" to include processes that modify either behavior or attitude. There are a number of theories on how to alter safety- and environment-responsible behavior or attitude, and although there are several pilot activities underway, the Laboratory has not yet chosen one.

At the Laboratory, safety- and environment-responsible behavior includes worker performance appraisals, accountability, awards programs, disciplinary actions, and other mechanisms for fostering safe and environmentally responsible behavior, such as peer (worker-to-worker) safety assessment, and systematic analyses of behavior precursors, such as perceptions and reinforcing antecedents.

The Laboratory also supports the use of vendor-supplied programs for behavioral safety training. These programs focus on close-knit work groups. The institution has decided that the choice of vendor be left to the discretion of individual facilities and organizations, depending upon their needs.

7.2. Accountability and Consequences

All members of the workforce are held accountable by their supervisors and managers for meeting the Laboratory's ES&H expectations. Accountability includes both the positive reinforcement of workers who meet ES&H expectations and also negative consequences, including disciplinary actions, for those who do not. In particular, line managers and supervisors are accountable for having effective processes in place to establish, implement, measure, and reinforce ES&H expectations and to foster safe and environmentally responsible behavior.

When an incident occurs that affects or potentially affects worker safety, the environment, or public health, the Laboratory investigates that incident to understand the active errors (i.e., the action or inaction of a worker or manager that is thought to directly cause the event) and the latent errors (i.e., contributors, often in the supervisory / management chain, that happen in advance of the event and "set up" the worker action) that contributed to the event. A logic model is applied to ascertain the relative contributions of the worker involved in the event, the supervisor, and institutional or organizational factors.

Although rare, people sometimes willfully violate controls (procedures, barriers, protective equipment) put in place to ensure ES&H. The philosophy used in the assignment of responsibility is that people generally take actions they believe are the

"right" thing to do under the circumstances. The approach is to look to see if there were circumstances outside the control of the individual that "set up" the action such that another person given the same situation would likely have acted in the same manner. If this is the case, "blame" is likely to be most appropriately placed somewhere in the management chain or with the institution itself. Cases where there is a management or institutional contributor are aggregated and further analyzed to determine whether the problem is isolated or systemic.

In cases where the worker or supervisor is found to be "at fault," the Laboratory uses progressive discipline to correct behaviors that are not consistent with Laboratory expectations. The Laboratory's disciplinary policy is documented in the Administrative Manual as AM 112. Additionally, the Laboratory has adopted a consequence matrix (found as Table 100.1 of the Administrative Manual) for poor ES&H performance to guide appropriate disciplinary actions for both supervisors and other members of the workforce. (The consequence matrix is under revision (1) to establish accountability all the way up the safety chain of responsibility; and (2) to allow for adjustment of the severity of the consequence, depending on the degree of willfulness involved in the event). The presence of systemic institutional ES&H issues could result in disciplinary action being applied throughout the management chain, up to and including the Laboratory Director.

In cases where it is determined that an "honest mistake" was made or that a systemic institutional problem caused the action, necessary corrective actions are taken. Such corrective actions can range from advising the worker or supervisor to prevent a recurrence, to additional training, to completely reengineering a Laboratory process.

8.0. Safety Resource Allocation

Laboratory program and line managers are responsible for planning work and for ensuring that expectations for safe and environmentally responsible work are incorporated into all work plans and addressed in resource prioritization and allocation. Institutional ES&H functions are funded by G&A (general and administrative) overhead allocations usually made to the Laboratory infrastructure and support divisions. Institutional pollution prevention functions are funded by both G&A overhead allocations and Landlord Program direct funding. ES&H and pollution-prevention functions for a given facility or programmatic activity are funded either directly by a program or by collection of a recharge, organizational support, or other internal taxation mechanism.

ISM is owned by the institution—not a single central organization. This distributed ownership necessitates that people in support and operating organizations perform ES&H-related work at the request of the institution. Questions then arise about payment for this work. The institution has established policies and practices related to various common situations. These policies and practices are based on the fundamental requirement of ISM that ES&H be part of everyone's job and of all work performed at Los Alamos. The following points codify the Los Alamos policy on organizational charges for institutional ES&H work:

- When a requirement for an institutional ISM-related activity is approved by the Laboratory Director's Office, the cost associated with the implementation of this policy will be borne by the individual divisions or groups and charged to the appropriate direct or indirect program code. Examples of such requirements are writing Organizational ISM Descriptions, serving on focus teams for the creation of institutional requirements, and working in grass- roots ES&H organizations.

- If the Laboratory requires the services of staff to work on unique or extraordinary projects that are clearly institutional in nature and do not fall within individual division or group ES&H responsibilities, the institution will provide funds, generally from the G&A account. Development of Just Accountability and modifying the associated consequence matrix or creating the Computerized Maintenance Management System are examples of two unique projects that were supported by institutional funds. In most situations, however, staff required to develop policy and procedures that will ultimately be deployed in the Laboratory should be charged to their individual divisions, FMUs, or groups.

- Divisions or groups that may foresee requiring the services of other organizations should contact those organizations so they can budget and rank these requests for services in the annual planning process.

An area of potential improvement under consideration is for Laboratory program and line management to gain a more thorough understanding of the cost of ES&H. The cost of ES&H is not limited to the cost of administering the ES&H program. It also includes costs that result from lost workday cases, management time spent responding to ES&H incidents, legal settlements, and other costs associated with the failure to meet requirements and apply the five-step process. These costs are a

significant portion of total ES&H costs and may even exceed the costs of administering the Laboratory's ES&H program. Through such a comprehensive review of ES&H costs, the Laboratory may be able to adapt Philip R. Crosby's philosophy "quality is free" to the ES&H program. The analogous concept of "ES&H is free" would promote recognition of the benefits of doing things responsibly each and every time. By stringently adhering to Laboratory procedures and processes, the Laboratory can avoid accidents or environmental damage and the associated high cost of responding to them.

8.1. Indirect Budgets

ES&H activities that are considered institutional in nature or are part of a facility management unit that is funded through the Laboratory's recharge and organizational support mechanisms are included in the Laboratory's indirect budget.

Senior management recognized the need to assure an integrated Labwide viewpoint. The DLDs are responsible for the oversight, coordination, assurance of Labwide focus, and encouragement of creative approaches for achieving efficiencies. The DLDs work together to integrate the budget and develop final recommendations.

Following this approach, the indirect budget process is conducted as a line management planning and budgeting effort. The Laboratory conducts its indirect budget submission annually, making interim approved quarterly adjustments as required. Each DLD is responsible for establishing a process within the directorate for developing indirect budgets by working with the ALDs and DDs within the respective directorate to develop budgets, review them, and prepare final recommendations for all indirect activities in the directorate.

The indirect budget process is a mechanism by which divisions can identify many unfunded ES&H issues. Composite targets are provided at the directorate level. Each division is required to submit a budget at the target case level first to the respective ALD or DLD. Additionally, a requirements case that exceeds the target level may also be submitted. Each ALD or DLD looks at target and requirement cases within their directorate and works with the divisions to prioritize activities. ALDs and DLDs then prioritize those issues with the greatest risk and assure they are included within their existing targets. Institutional issues are prioritized and submitted for discussion by the Senior Executive Team, who will determine how to best fund them.

ES&H issues that arise throughout the year are dealt with each quarter. Requests are submitted through the respective ALD or DLD to the Business Operations Division, which presents the data to the Senior Executive Team for review and prioritization. New funding is then allocated to divisions or the divisions are asked to re-prioritize existing funding to meet any substantial issues.

A work breakdown structure (WBS) that encompasses the primary ES&H elements was created, which is used by FMs, regardless of funding source. A dictionary defines each of the elements within the WBS. The dictionary was a joint effort by the FMs, the program offices, and ESH, S, F, PMD, and BUS Divisions. Use of the dictionary ensures consistency between the programs, the institution, and the

elements required in the *ES&H Management Plan*. This helps the Laboratory to develop quality cost data, thus enhancing the Laboratory's ability to respond credibly to DOE cost inquiries.

8.2. Deployed Personnel

The changing programmatic environment requires flexible customer-driven deployment of ES&H staffing to support activity- and facility-specific ES&H functions in the field. To meet this need, mechanisms for effective load-leveling (including deployable worker pools, flexible funding, and contractor arrangements) have been established and are used by Laboratory management. Effective integration of ES&H into work requires all program and line managers to plan explicitly for ES&H in their annual budget cycle and for on-going resource management, including prioritization. ES&H resource planning and resource allocations by line management are based upon systematic needs analysis done jointly by the line and support organizations. Long-term planning of core institutional ES&H functions and staffing is also essential due to the broad mix of ES&H challenges at the Laboratory.

8.3. ES&H Management Plan

At the request of DOE, the Laboratory prepares and annually updates, in coordination with BUS and ESH Divisions, the *ES&H Management Plan*. This plan identifies all funded and unfunded ES&H activities for the current year and out years. Data is available by functional area, as well.

This five-year planning document covers projected tasks, milestones, and costs associated with managing risks and achieving the institution's ES&H expectations, excluding the Environmental Management Program's activities. The document includes forecasts in both the G&A and direct budget categories for core institutional ES&H activities, planned compliance efforts, and unfunded compliance or improvement items.

Following the five steps of ISM in relation to planning and resource management, Laboratory organizations perform the following:

1. Define the Work - Strategic/Tactical Planning and Work Packages. Each division defines ES&H tasks that need to be addressed within the next 5 years. Projections of the scope of work, scheduling, and cost of these tasks are then prepared.

The tasks are reviewed, and duplications, cost accounting issues, etc., are addressed and integrated. (For example, if a division requests funding for something that is already funded by an ESH allocation, a decision would be made as to who would own the issue and, thus, the funding.) Key to this is to continue with the ESH business realignment—determining for the Laboratory what ES&H products and services should be core (institutional), centralized, or deployed.

2. Analyze the Hazards - Risk Management (Prioritization). A focus team of programs, FMs, and ESH staff determines a priority list of risks at the Laboratory. At this point, funding sources are discussed. If something is defined as deployed, direct allocations from programs to line organizations fund it. Deployed services are directly related to facility costs in most cases and should be addressed during facility management planning and budgeting. Services defined as centralized should be

funded directly by the programs or recharged. The Laboratory intends to move in this direction over the next 5 years. Core functions would remain in G&A, but input would be provided by this team to help determine priorities for the institution.

Preparing the *ES&H Management Plan* requires risk identification and prioritization. This document provides a tool to the Laboratory for planning and reference. The prioritization process may be done quarterly or semi-annually to address new issues and requirements as they arise.

The risks and priorities are then reviewed and accepted by the Senior Executive Team.

3. Control the Hazards - Project Management. Once funds are allocated they are used to implement controls and improve safety and environmental performance. The common WBS currently being developed for FMs is used consistently by all FMUs to track ES&H costs throughout the institution. Scope, schedule, and costs are also evaluated. A formal change control system similar to the ISM change control system will be used to address new concerns and improvements. This ensures integration of ES&H tasks across the institution.

4. Perform the Work. - Costs are tracked using the ES&H WBS.

5. Obtain Feedback - Performance Measures. Milestones and performance are tracked and measured. Customer feedback is requested and used in determining if the Laboratory met established goals.

Once in place, the *ES&H Management Plan* can be used to implement institutional cross-cutting funding, allowing the Laboratory to identify ES&H costs and commitments by functional area. It allows the institution to evaluate potential risks for cost-effective management.

Appendices

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Appendix A: Current Safe Work Practices and Facility Documents

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Appendix B:

Authorization Agreements with DOE/ALO

This list is maintained by the ISM CCB. Facilities can be added or deleted from this list through a change control process. See Sec. 5.5.6 on Authorization Agreements for details.

- Chemistry and Metallurgy Research (CMR) Facility (TA-3-29)
- Weapons Engineering Tritium Facility (WETF) (TA-16-450)
- Appaloosa Project
- Tritium Science and Fabrication Facility (TSFF) (TA-21-209)
- Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility (TA-50-37)
- Plutonium Facility (TA-55-4)
- Los Alamos Neutron Scattering Science Center (LANSCE) (TA-53)
- Los Alamos Critical Experiments Facility (LACEF) and Hillside Vault (TA-18)
- Radioactive Liquid Waste Treatment Facility (TA-50-1)
- Waste Characterization Reduction and Repackaging Facility (TA-50-69)
- Waste Storage and Disposal Facility (TA-54-G)
- Transuranic Waste Inspectable Storage Project (TWISP) (TA-54)
- PTLA Firing Site
- Radioactive Analysis and Nondestructive Testing (RANT) (TA-54 West)
- Tritium Systems Test Assembly (TSTA) (TA-21)
- Beryllium Facility, TA-3, SM-141
- Counter-terrorism Training Activities (NEST) (TA-18)
- Dual-Axis Radiographic Hydrotest Facility (DARHT)

Activity Agreements with DOE/NVO

- Device Assembly Facility
- U1a Experimental Facility

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Appendix C: Institutional ES&H Documents

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Appendix D: ISM Change Control Board

D.1. CCB Charter

The ISM Change Control Board operates under a charter that was created by DOE with concurrence of the Laboratory. The CCB meets quarterly to consider changes to the ISM description document and the implementation plan. The ISM CCB maintains a record of all actions taken at its meetings.

Los Alamos Area Office
Integrated Safety Management
Change Control Board Procedure

July 1997

Submitted: (original signed by D. Glenn, 7/28/97)
Dan Glenn, Senior Safety Advisor
Los Alamos Area Office

Reviewed: (original signed by G. Thomas Todd, 7/28/98)
G. Thomas Todd, Manager,
Los Alamos Area Office

Approved: (original signed by Rush O. Inlow, 8/1/97, for)
Bruce G. Twining, Manager,
Albuquerque Operations Office

Los Alamos Area Office
Integrated Safety Management
Change Control Board

1.0 PURPOSE

This procedure establishes requirements for the conduct of the Los Alamos National Laboratory (LANL) Integrated Safety Management (ISM) Change Control Board (CCB). The CCB is tasked with reviewing requests for changes to the LANL ISM Continuous Improvement Plan or System Description as accepted by the Manager, Albuquerque Operations Office (AL), Department of Energy (DOE).

2.0 SCOPE

This procedure applies to all personnel involved in submitting, reviewing, or approving requests for changes to the LANL ISM Continuous Improvement Plan, System Description Document, or Authorization Agreements.

3.0 RESPONSIBILITIES

3.1 Chair, CCB, is responsible for

a. reviewing submitted change request data,
b. assigning additional personnel to attend CCBs,
c. scheduling CCBs,
d. determining the board's recommendation to approve or disapprove requests for change,
e. presenting minority opinions to the approval authority, and
f. directing the conduct of the CCB.

3.2 Members, CCB are responsible for

a. reviewing submitted change request data,
b. attending CCBs as required, and
c. providing input to the CCB chair in making final recommendations to approve or disapprove requests for change, and
d. documenting any minority opinions.

3.3 LANL Program Manager for Integrated Safety Management (PRISM) is responsible for

a. submitting change request packages,
b. acting as the point of contact for the CCB in obtaining additional technical material when required, and
c. coordinating laboratory personnel attendance at CCB proceedings.

4.0 INSTRUCTION

4.1 Board Preparation

4.1.1. Two weeks prior to the convening date of the CCB, the PRISM will submit a Requests for Change Package to the CCB chair. The package will contain the following information.

LANL ISM Continuous Improvement Plan Milestone Schedule. The milestone schedule will include the current status of all milestones, and a discussion section for all late milestones.

A change request for each requested change. Change requests will be in the format included in this procedure as Attachment 1.

4.1.2. Upon receipt of the Requests for Change Package, the CCB chair will distribute copies of the package to all CCB members for review.

4.1.3. The CCB chair will review the package and determine if additional information is required or if additional technical personnel should be present at the board's proceedings to provide input to the board members.

4.1.3.1 If additional information is required from LANL, the CCB chair will notify the LANL PRISM of the requirements.

4.1.3.2. If additional DOE personnel are required to attend board proceedings, the chair will notify such individuals at least one week prior to the board convening date and will specify what technical information they are expected to provide.

4.1.3.3. If additional LANL personnel are required, the board chair will notify the LANL PRISM of the requirements at least one week prior to the board convening date and will specify the purpose for requesting their attendance at the board's proceedings.

4.2 Conduct of the Board

4.2.1. The board will consist of the following members:

Chairman, LAAO Senior Safety Advisor;
one member representing AL;
one member representing LANL; and
one member representing the University of California.

4.2.2. The board chair will assign an individual to record the minutes of the board meeting. Board meeting minutes will contain as a minimum

the date and time the board was convened,
the names of board members,
a list of attendees, and
the proposed changes discussed and the results.

4.2.3 The board will review each change request submitted by the Laboratory.

4.3.2.1. The Laboratory representative will discuss the change request for each identified item. The discussion will include why the change is necessary, and the impact of the change.

4.2.3.2. After any necessary discussion, the board will determine whether a recommendation to approve the change request will be forwarded. The board chair has the responsibility for the final decision for forwarding a recommendation for approval.

If the board determines that a change request is not substantiated by factors outside the control of the contractor, or by logical changes that are necessary to effect a more efficient, safety-focused approach, then the missed milestone will remain as overdue and will be identified as such for input into the annual Laboratory appraisal.

Any minority opinions from the board members or invited technical representatives will be communicated to LAAO by the board chair for final resolution.

4.3 At the conclusion of the board proceedings, the chair will indicate the board's recommendation for each request for change in the space provided on the Change Request Form (Attachment 1) and forward the forms, meeting minutes, and the Requests for Change Package to LAAO, for review.

4.4 Change Authorization

4.4.1 After review, LAAO, will sign those change requests that are approved in the space provided on the Change Request Form. A signature indicating approval of a change request is DOE authorization for the laboratory to make the described change to the implementation plan or system description document.

4.4.2 Completed Change Request Forms will be returned to the CCB chair for distribution.

5.0 RECORDS

The following records will be maintained for each board meeting:

5.1. Requests for Change Package, including copies of Change Request Forms signed by the CCB chair.

5.2. Board meeting minutes

6.0 ATTACHMENT 1: Change Request Form

Attachment 1

Change Request Form

IP Activity ID #	Activity Description

Description of Change Requested:

Justification for Change Request:

Submitted: _____ _____
LANL Change Control Coordinator **Date**

Recommendation: _____ _____
Approve / Disapprove **CCB Chair** **Date**
(circle one)

Approved: _____ _____
Manager, LAAO **Date**

D.2. CCB as WSS Convened Group

The work smart standards in Appendix G of the UC-DOE contract were selected in late 1997 using the DOE's necessary and sufficient process. This set of standards must be altered periodically in response to changes in DOE orders, consensus standards, and the work of the Laboratory. A process similar to that used to create the original list in Appendix G is used to change it. When a reason for a change is identified, a Laboratory-DOE focus group is formed to determine and recommend to the ISM CCB actions to be taken. The ISM CCB then acts as the convened group to accept, reject or recommend other actions. If the change is accepted by the CCB, it is taken forward to the UC and DOE contracting officers for incorporation into Appendix G.

The following memo gives the ISM CCB the role of the convened group.

D.3. Memo: Maintenance of the Current LANL ES&H Work Smart Standards

United States Government **Department of Energy**

memorandum

Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

DATE: **MARCH 30, 1998**
REPLY TO:
ATTN OF: LAAME:3JV-004
SUBJECT: Maintenance of the Current LANL ES&H Work Smart Standards (WSS)

TO: Robert Van Ness, Assistant Vice President for Laboratory Administration, UC
Larry Kirkman, Acting Assistant Manager, OTMO, AL
James Jackson, Deputy Director, DIR, LANL, MS-A100

The original Work Smart Standards effort successfully completed its original charter by modifying Appendix G of the DOE/UC contract in October 1997. A key element was the establishment of a convened group comprised of the contractual parties to steer the WSS effort. Maintenance of the current WSS set requires that a similar body of contractual parties steer the effort. To that end, the current ISM Change Control Board, comprised of the contractual parties, has consented to function as the convened group, and the membership is as follows:

Dan Glenn--DOE, Los Alamos Area Office (Chairman)
Steve Fattor--DOE, Albuquerque Operations Office
Lee McAtee--Los Alamos National Laboratory
Howard Hatayama--University of California, Office of the President

This memorandum documents that one of the roles of the ISM Change Control Board is to function as the Convened Group to steer the maintenance of the LANL ES&H WSS Standards.

Should you have any questions, please call Joe Vozella of my staff at (505) 665-5027.

(original signed by G.T. Todd)
G. Thomas Todd
Area Manager

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Appendix E: Memorandum on Safety Function Managers from the Office of the Director dated September 14, 1999, from J. C. Browne to Distribution.

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Los Alamos
NATIONAL LABORATORY
memorandum
Office of the Director

To/MS: Distribution
From/MS: J. C. Browne, A100
Phone/FAX: 7-5101/7-2997
Symbol: DIR
Date: September 14, 1999

Safety Function Managers

Institutional performance assurance is essential to our effective implementation for Integrated Safety Management. The Laboratory must, therefore, regularly evaluate institutional conformance to applicable environmental health and safety expectations. Safety Function Managers are responsible for these institutional evaluations and are appointed by the Laboratory Director. Please note that Tom Gunderson has taken over as Safety Function Manager for the Environmental Protection area.

The Safety Function Managers are as follows:

- Emergency Management - George Vantiem
- Environmental Protection - Tom Gunderson (including Environmental Restoration and Waste Management)
- Facility Management - Wally McCorkle (includes nuclear facility safety)
- Fire Protection - Jim Gourdoux
- Management Systems - Lee McAtee (e.g., training, quality assurance, occurrence reporting, performance assurance) -
- Occupational Safety and Health - Barbara Hargis
- Packaging and Transportation - Carol Smith
- Radiation Protection- Joe Graf (including criticality safety)
- Security - Kevin Leifheit

Specific responsibilities for SFMs are located in LIR 307-01-01.0, Safety Self-Assessment. Questions regarding these responsibilities or this assignment .should be directed to Audits and Assessments (7-2575/jloud@lanl.gov).

RG:JL:saq

Distribution:
J.R. Gourdoux, F-2 1, D427
J.M. Graf, ESH-RPO, K483
T. Gunderson, DLOPS, A100
B.C. Hargis ESH-5, K486
J.L. McAtee, ESH-DO, K49 I
M.L. McCorkle, FE-IFMPO, M720
C. A. Smith, BUS 4, P274
G.A. Vantiem, S-8, K493
K.R. Leifheit S-2, M702

Cc: D.J. Erickson, ESH-DO, K491
A. Johnston, BUS-DO, P 119
J.J. Loud, AA-2, G783
P. Thullen, DIR A100
W. H. Hamilton, F-DO, P913
S. L. Busboom, S-DO, G729
R. Burick, DLOPS, A100
T.Baca,E-DO,J591

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Bibliography

In addition to the contract clauses listed previously, other documents set the basis for the integrated safety management system being implemented at Los Alamos. The following are key:

1. *48CFR 970.5204-78 Laws, Regulations, And DOE Directives.* This is the basis for UC-DOE contract clause 5.5, and review of this source document will show slight modifications incorporated into clause 5.5.

2. "Defense Nuclear Facilities Safety Board Recommendation 95-2 To The Secretary Of Energy." This memo recommends the use of safety standards and a safety management system as defined in other DNFSB documents. It is the driver for WSS and ISM.

3. "Fundamentals for Understanding Standards-Based Safety Management of DOE Defense Nuclear Facilities," Joseph J. DiNunno, DNFSB/TECH-5 (May 31, 1995). A discussion of safety standards, ISM, authorization basis, and authorization agreements. This expands on recommendation 95-2.

4. "Safety Management and Conduct of Operations at the Department of Energy's Defense Nuclear Facilities," Herbert J.C. Kouts, and Joseph J. DiNunno, DNFSB/TECH 6 (October 6, 1995). A discussion safety management systems and conduct of operations. This expands on recommendation 95-2.

5. "Safety Management System Policy, "DOE Policy P 450.4, (10-15-96). This is a response to recommendation 95-2. The contents of the ISM description document are consistent with and amplify this document.

6. "Integrated Safety Management," Joseph J. DiNunno, DNFSB/TECH-16 (June 1997). The most recent and best discussion of ISM from the DNFSB.

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Relevant Contract Clauses

Several clauses in the UC-DOE contract are important to the implementation of ISM: 5.5 - DEAR 970.5204-78 LAWS, REGULATIONS, AND DOE DIRECTIVES (JUN 1997) (MODIFIED); 5.14 - SPECIAL ASSESSMENTS; and 6.7 - DEAR 970.5204-2 INTEGRATION OF ENVIRONMENT, SAFETY, AND HEALTH INTO PLANNING AND EXECUTION (JUN 1997). Understanding of the requirements in these clauses is important to the understanding of ISM, and they are reproduced here for convenience.

Clause 5.5. The Laws DEARS Clause

This clause is a modification of 48 CFR 970.5204-78. This clause is the basis for the selection of an inclusion of laws, regulations, and DOE directives in Appendix G. It is a requirement of this clause that "No DOE directive shall be considered a requirement of this contract unless it has been included in (Appendix G) in accordance with the procedures set out in this clause."

CLAUSE 5.5 - DEAR 970.5204-78 LAWS, REGULATIONS, AND DOE DIRECTIVES (JUN 1997) (MODIFIED)

(a) In performing work under this contract, the Contractor shall comply with the requirements of applicable federal, state, and local laws and regulations, unless relief has been granted in writing by the appropriate regulatory agency.

(b) In performing work under this contract, the Contractor shall comply with the requirements of those DOE Directives, or parts thereof, identified in the List of Applicable Directives (List) referred to in Appendix G, DOE Directives. The Contracting Officer may, from time to time and at any time, revise the List by unilateral modification to the contract to add, modify, or delete specific requirements; provided, however, that no directive added to the List shall in any manner modify the rights and obligations of the Parties except as set forth elsewhere in this contract.

(c) Prior to revising the List, the Contracting Officer shall notify the Contractor, in writing, of DOE's intent to revise the List and provide the Contractor with the opportunity to:

(1) Assess the effect of the Contractor's compliance with the revised List on contract cost and funding, technical performance, and implementation schedule for directives on the List; and

(2) Identify any potential inconsistencies between the revised List and the other terms and conditions of the contract, including an alternative set of requirements incorporated by reference in accordance with paragraph (f) below.

(d) Within 30 days after receipt of the Contracting Officer's notice, the Contractor shall advise the Contracting Officer, in writing, of the

potential impact of the Contractor's compliance with the revised List, including the matters identified in paragraph (c) above.

(e) Based on the information provided by the Contractor and any other information available, the Contracting Officer shall decide whether to revise the List, and so advise the Contractor not later that 30 days prior to the effective date of the revision of the List. The Contractor and the Contracting Officer shall identify and, if appropriate, agree to any changes to other contract terms and conditions, including cost and schedule, associated with the revision of the List pursuant to Clause 5.6, Changes. No DOE directive shall be considered a requirement of this contract unless it has been included in the List in accordance with the procedures set out in this clause.

(f) Environmental, safety, and health (ES&H) requirements applicable to this contract may be determined by a DOE approved process to evaluate the work and the associated hazards and identify an appropriately tailored set of standards, practices, and controls, such as a tailoring process included in a DOE approved Safety Management System implemented under Clause 6.7, Integration of Environment, Safety, and Health into Work Planning and Execution. When such a process is used, the set of tailored ES&H requirements, as approved by DOE pursuant to the process, shall be incorporated into the List as contract requirements with full force and effect. These requirements shall supersede, in whole or in part, the contractual environmental, safety, and health requirements previously made applicable to the contract by the List.

(g) The Contractor shall be responsible for compliance with the requirements made applicable to this contract, for work performed at the Laboratory regardless of the performer of the work. Consequently, the Contractor shall be responsible for flowing down the necessary provisions to subcontracts at any tier to which the Contractor determines such requirements apply.

[End of Clause 5.5]

Clause 5.14. Special Assessments

This clause is unique to Los Alamos and does not apply to the other UC managed laboratories. It is sometimes called the "Off Ramp." It applies only during the first two years of the current contract period: October 1997 to September 1999. (Contract Clause attached)

CLAUSE 5.14 - SPECIAL ASSESSMENTS (SPECIAL)

(a) General. In addition to the periodic appraisals and evaluations otherwise required by this contract, DOE shall conduct special assessments of the Laboratory. The purpose of the reviews will be to determine whether the overall level of performance achieved is satisfactory with regard to the performance objectives in Appendix F and whether substantial progress has been made in meeting the requirements of this clause.

(b) Environment, safety, and health (ES&H).

(1) The Contractor shall implement an Integrated Safety Management System (ISMS) that is based on the requirements in Clause 6.7, Integration of Environment, Safety and Health into Work Planning and Execution.

(2) Major actions and milestones contributing significantly to the successful implementation of the Laboratory's ISMS are described below and are the key milestones against which the Contractor's performance will be measured, subject to changes in milestones that are made pursuant to a formal change control process involving the DOE, the Contractor, and the Laboratory:

(i) The Contractor will implement an institutional work control system that, at a minimum, meets the expectations contained in the approved ISMS Implementation Plan. The Contractor will demonstrate to DOE it is operating in accordance with the work control system by October 1997.

(ii) The Contractor will complete Facility Manager (FM)/Tenant Agreements that meet the expectations described in the approved ISMS Implementation Plan. The Contractor will demonstrate to DOE that such Agreements are effective in communicating ES&H roles and responsibilities among facility owners and users, and that sufficient resources are applied to operate safely by November 1997.

(iii) The Contractor will complete Facility Safety Plans and submit Authorization Agreements as described in the approved ISMS Implementation Plan. Specifically, Facility Safety Plans will address, at a minimum: a description of the collective work of the Facility Management Unit and/or facility; analyses of facility hazards; identification of facility-specific expectations and controls; a definition of the safety envelope, if applicable; a description of mechanisms to implement the institutional work control process, including institutional requirements pertinent to

the facility operations; how expectations are maintained (e.g., FM / tenant, FM / support agreements, surveillance requirements, etc.); the means for identifying changes in activities and / or facility conditions, and associated hazards that could require modifications to the Facility Safety Plans; identification of tenant responsibilities for conforming to the established standards for the conduct of operations in the facility; and requirements for training and / or qualifications of key positions in the facility to ensure facility personnel are knowledgeable of the work or operations in which they are involved. At DOE's request the Contractor must demonstrate to DOE that facilities are operated in accordance with their respective Facility Safety Plans.

(iv) The Contractor shall use the Work Smart Standards Process resulting in specific institutional standards to be used and referenced in the contract as described in the approved ISMS Implementation Plan

(v) The Contractor shall overhaul the existing Institutional Requirements System as described in the approved ISMS Implementation Plan.

(vi) The Contractor shall identify the mechanism(s) to be used to ensure researchers conduct research and development safely. In addition, the Contractor shall establish Contractor- approved safe-work practices that meet the principles of integrated safety management as described in the approved ISMS. At DOE's request the Contractor shall demonstrate the use and effectiveness of such practices.

(vii) The Contractor shall implement Laboratory Performance Assurance Program as described in the approved ISMS Implementation Plan.

(viii) Self-assessment is expected to be an ongoing process as part of the ISMS. However, for each of the ISMS elements above, the Contractor will self-assess the status of implementation at the milestone date as described in the approved ISMS Implementation Plan. The results of these self-assessments will be formally submitted to the DOE within ten working days of the milestone date or as otherwise agreed to between DOE and the Contractor. The DOE may perform its validation review any time subsequent to submittal of the Contractor's self- assessments.

(3) (i) DOE and the Contractor agree that to be successful in improving operations at the Laboratory, Contractor management must demonstrate support for achieving the desired level of formality as defined in the ISMS as the path toward improvement. Strong support from managers with extensive Laboratory experience is essential toward making progress. Therefore, the parties agree that the Contractor must aggressively pursue ensuring such support for formality of operations from all senior managers at the Laboratory. By November 1997, the Contractor will submit for DOE approval the set of actions / milestones the Contractor management will commit to undertake to demonstrate such support.

(ii) As described in the DOE Implementation Plan in response to Defense Nuclear Facilities Safety Board Recommendation 95-2 and as described in the approved implementation Plan, Implementation of ISMS is the primary vehicle for accomplishing the desired change to a more formal approach to facility operations and safety. Furthermore, it is agreed that ISMS is best suited for improving safety in research and development activities because identification of the appropriate controls relies upon the work and the hazards associated with the work thus allowing

tailoring of the controls and increased ownership by line management and the workforce in general.

(iii) A fully implemented and successful ISMS will require ongoing revisions. To accomplish this task the Contractor will periodically review both the ISMS System Description and the effectiveness of its associated Implementation Plan to determine if the ISMS is achieving its intended goal of assuring work is accomplished safely. The Contractor will submit revisions as necessary to reflect the needed changes. The next revision will address, at a minimum:

(A) Training and qualifications of FMs and Senior Technical Managers;

(B) An integrated method of performing ES&H reviews for all work-for-others programs; and

(C) Increased detail as to the content of the initiative to overhaul the existing institutional requirements system. The system, as overhauled, will provide a procedural system hierarchy that covers institutional policies down to standard operating procedures and clearly defines the purpose and scope of each element. The system shall address clear requirements or procedures for level of rigor relative to risk. The system will also provide a mechanism to allow prompt revisions when necessary for the continuation of work. The system shall also specify the approval authority for deviations from any procedure or policy.

(iv) The Contractor will accomplish the following tasks to promote the desired culture change regarding facility operations:

(A) Within 30 days of the effective date of this Supplemental Agreement, the Contractor will charter the University of California Laboratory Operations Management Committee, composed of the Laboratory Administrative Office Special Assistant; Laboratory Administrative Office Executive Director, Operations; and the Deputy Directors of the three national Laboratories managed by the Contractor. The Committee charter will establish the Committee's responsibility to the Contractor's Senior Vice President for Business and Finance for improving the overall operational excellence of performance at the Laboratories, with an emphasis at LANL on improving the safety of operations. The Committee will be charged, by charter, with enhancing the safety of operations at the Laboratories through:

1. identifying and adapting best practices for the Laboratories;

2. seeking advice and input from the University campuses and industry; and

3. establishing and implementing peer review and collaboration teams who will review progress in ISMS implementation, Work Smart Standards, implementing continuous improvement initiatives, identifying centers of excellence, adapting industry best practices to the Laboratories and assuring effective implementation of lessons learned.

(B) The charter of the Committee will reflect, by signature or otherwise, the approval of and commitment to the charter by the University President, the Provost, and the Senior Vice President for Business and Finance; and the Directors of the three national Laboratories.

(C) In selecting a new Laboratory Director, the Contractor will consider, as a significant factor in evaluating candidates, a candidate's demonstrated commitment to operational excellence, especially with respect to safety in operations.

(D) A key factor in the performance evaluation of the Laboratory Director will be the successful implementation of integrated safety management as described in the approved ISMS Implementation Plan.

(E) ISMS implementation will also be a key factor in the performance evaluation of all managers and supervisors at the Laboratory with responsibility for research and development facilities or activities in such facilities.

(c) Environmental restoration and waste management. Environmental restoration (ER) and waste management (WM) activities must be carried out in a cost-effective and environmentally responsible manner. The following are key performance areas which will be assessed pursuant to this clause. ER and WM will be assessed separately.

(1) Mission completion.

(i) This subparagraph ties directly to the Accelerating Cleanup 2005 National Plan where the Contractor shall demonstrate progress toward the completion of the ER Program by the year 2005 and progress in critical WM mission areas. Critical mission completions include:

(A) Release-site clean-ups,

(B) Decontamination & Decommission completion reports,

(C) Transuranic (TRU) and mixed low-level legacy waste work-off, and

(D) Ongoing WM operations.

(ii) At a minimum, the Contractor shall achieve a "good" level of performance during the Special Assessment periods in the above mission areas based on the milestones and/or gradients established in Appendix F as modified through a formal change control process based on current budget authorization.

(2) ER management and technical costs. The Contractor shall demonstrate progress toward reducing management and technical support costs relative to overall ER program costs. The Contractor shall achieve at least a "good" level of performance relative to the benchmark derived targets and/or gradients established in Appendix F.

(3) WM costs. The Contractor shall demonstrate progress towards reducing the present and long-term management costs related to WM. The Contractor shall achieve at least a "good" level of performance based on targets and/or gradients established in Appendix F using the FY 1997 approved WM Baseline and Albuquerque Operations Office WM data dictionary cross walk.

(4) Make-or-Buy.

(i) The Contractor shall conduct a make-or-buy analysis within 180 days of the effective date of this contract in a manner which is consistent with the approved Laboratory make-or-buy plan for the following WM activities. Implementation of the make-or-buy decision will take place in accordance with the analysis.

(A) Processing and preparation of TRU legacy waste for shipment, and

(B) Operations and planned facility upgrades for the Radioactive Liquid Waste Plant.

(ii) The Contractor shall conduct a make-or-buy analysis in a manner which is consistent with the approved make-or-buy plan for all ER projects exceeding $5 million life-cycle costs which are initiated within this Special Assessment review period and implement the make-or-buy decision accordingly.

(d) Regional involvement .

(1) The Contractor, consistent with the commitments made in Appendix N, will establish an educational foundation and will have initiated educational outreach in the surrounding school districts by October 15, 1997.

(2) The Contractor, working with regional community and educational groups, will have completed a regional educational plan and begun implementation by October 1997, with an emphasis on grades K-12 that is intended to match present and future community workforce needs and improve preparation for higher education.

(3) The Contractor will perform an annual survey of its management performance in meeting community expectations. Participants will include, but not be limited to, the chairman of the Community Reuse Organization, superintendents of regional school districts, government leaders, representatives from Indian Tribes, and DOE.

(4) Implementing Appendix J, the Contractor will achieve a ten percent increase (over the FY 1996 base) in regional purchases by October 1998.

(5) The Contractor, working with regional groups, will devote 500 hours per year of non-laboratory professional staff time to the development of a regional economic development plan that is completed by January 1998.

(6) The Contractor will document the regional investments committed to in the contract in an annual report.

(e) Conduct of the Special Assessments. The Special Assessment provided for by this clause shall be conducted after the first and second year of contract performance by personnel of the Albuquerque Operations Office in consort with such additional DOE personnel as the Contracting Officer may deem appropriate. The Special Assessment Team in conducting the reviews may consider, but shall not be limited to, information developed in the conduct of annual performance assessments as provided by Clause 2.6, Performance-based Management. The results of the Special Assessments will be provided to the Contractor for review and comment prior to finalization and submission to the Secretary of Energy.

(f) Results of Assessment. The first year Special Assessment shall be a preliminary assessment of the Contractor's performance status and its progress in achieving the requirements of this clause. However, if upon completion of the second year Special Assessment, DOE determines that the Contractor's performance is unacceptable with respect to the objectives set forth in paragraphs (b), (c), or (d) above, or that the Contractor's overall performance level at the Laboratory is not sufficiently satisfactory as measured in accordance with Appendix F, DOE may, upon direction of the Secretary of Energy, terminate the contract in whole or in part in accordance with subparagraph (a)(1)(ii)(A) of Clause 13.2, Termination; provided that, in the event that unsatisfactory performance or failure to make progress is determined solely in the area of environmental restoration and waste management, the right of termination shall be limited to that portion of the contract related to such work. A decision to terminate this contract in whole, or in part, is solely that of the Secretary of Energy consistent with the Secretary's determination of whether the public interest is served thereby.

[End of Clause 5.14]

Clause 6.7. The ES&H DEARS Clause

This clause is taken from 48 CFR 970.5204-2, and is consistent with DOE Policy 450.4 "Safety Management System Policy." 48 CFR requires that this clause be in all DOE contracts, and subcontracts of DOE contractors, for organizations that are of sufficient size to have and ES&H organization. It is a legal requirement that DOE include the clause in the UC DOE contract, and a contractual requirement that we follow it. This clause applies to all UC managed laboratories, and is the foundation of ISM.

CLAUSE 6.7 - DEAR 970.5204-2

INTEGRATION OF ENVIRONMENT, SAFETY, AND HEALTH INTO PLANNING AND EXECUTION (JUNE 1997)

(a) For the purposes of this clause, safety encompasses environment, safety and health, including pollution prevention and waste minimization; and workers include subcontractor workers.

(b) In performing work under this contract, the Contractor shall perform work safely, in a manner that ensures adequate protection for workers, the public, and the environment and shall be accountable for the safe performance of work. The contractor shall exercise a degree of care commensurate with the work and the associated hazards. The Contractor shall ensure that management of environment, safety, and health (ES&H) functions and activities becomes an integral but visible part of the Contractor's work planning and execution processes. The Contractor shall, in the performance of work, ensure that:

(1) Line management is responsible for the protection of workers, the public, and the environment. Line management includes those Contractor and subcontractor workers managing or supervising workers performing work.

(2) Clear and unambiguous lines of authority and responsibility for ES&H are established and maintained at all organizational levels.

(3) Personnel possess the experience, knowledge, skills and abilities that are necessary to discharge their responsibilities.

(4) Resources are effectively allocated to address ES&H, programmatic, and operational considerations. Protecting workers, the public, and the environment is a priority whenever activities are planned and performed.

(5) Before work is performed, the associated hazards are evaluated and an agreed-upon set of ES&H standards and requirements are established which, if properly implemented, provide adequate assurance that the workers, the public, and the environment are protected from adverse consequences.

(6) Administrative and engineering controls to prevent and mitigate hazards are tailored to the work being performed and associated hazards. Emphasis should be

on designing the work and/or controls to reduce or eliminate the hazards and to prevent accidents and unplanned releases and exposures.

(7) The conditions and requirements to be satisfied for operations to be initiated and conducted are established and agreed-upon by DOE and the Contractor. These agreed upon conditions and requirements are requirements of the contract and binding upon the Contractor. The extent of documentation and level of authority for agreement shall be tailored to the complexity and hazards associated with the work and shall be established in a Safety Management System.

(c) The Contractor shall manage and perform work in accordance with a documented Safety Management System (System), that fulfills all conditions in paragraph (b) above at a minimum. Documentation of the System shall describe how the Contractor will:

(1) Define the scope of work;

(2) Identify and analyze hazards associated with the work;

(3) Develop and implement hazard controls;

(4) Perform work within controls; and

(5) Provide feedback on adequacy of controls and continue to improve safety management.

(d) The System shall describe how the Contractor will establish, document, and implement safety performance objectives, performance measures, and commitments in response to DOE program and budget execution guidance while maintaining the integrity of the System. The System shall also describe how the Contractor will measure system effectiveness.

(e) The Contractor shall submit to the Contracting Officer documentation of its System for review and approval. Dates for submittal, discussions, and revisions to the System will be established by the Contracting Officer. Guidance on the preparation, content, and review and approval of the System will be provided by the Contracting Officer. On an annual basis, the Contractor shall review and update, for DOE approval, its internal safety performance objectives, performance measures, and commitments consistent with and in response to DOE's program and budget execution guidance and direction. Resources shall be identified and allocated to meet the safety objectives and performance commitments as well as to maintain the integrity of the entire System. Accordingly, the System shall be integrated with the Contractor's business processes for work planning, budgeting, authorization, execution, and change control.

(f) The Contractor shall comply with, and assist DOE in complying with, all applicable laws, regulations, and DOE Directives. The Contractor shall cooperate with regulatory authorities having jurisdiction over ES&H matters under this contract.

(g) The Contractor shall promptly evaluate and resolve any noncompliance with applicable ES&H requirements and the System. If the Contractor fails to provide resolution or if, at any time, the Contractor's acts or failure to act cause substantial

harm or an imminent danger to the environment or health and safety of workers or the public, the Contracting Officer may issue an order stopping work in whole or in part. Any stop work order issued by a Contracting Officer under this clause (or issued by the Contractor to a subcontractor) shall be without prejudice to any other legal or contractual rights of the Government. In the event that the Contracting Officer issues a stop work order an order authorizing the resumption of the work may be issued at the discretion of the Contracting Officer. The Contractor shall not be entitled to an extension of time or additional fee or damages by reason of, or in connection with, any work stoppage ordered in accordance with this clause.

(h) The Contractor is responsible for ensuring compliance with the ES&H requirements applicable to this contract at the facilities identified in Clause 6.1, Laboratory Facilities, regardless of the performer of the work. To the extent permitted by law, this paragraph is not intended to attribute any liability to the Contractor in the absence of a specific finding of fault on the part of the Contractor.

(i) The Contractor shall include a clause substantially the same as this clause in subcontracts involving complex or hazardous work on-site at a DOE-owned or DOE - leased facility. Such subcontracts shall provide for the right to stop work under the conditions described in paragraph (g) above. Depending on the complexity and hazards associated with the work, the Contractor may require that the subcontractor submit a Safety Management System for Contractor's review and approval.

[End of Clause 6.7]

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ISM Continuous Improvement Plan

The ISM Continuous Improvement Plan (CIP) is a listing of specific activities that will be undertaken by the Los Alamos National Laboratory in support of the implementation and sustained execution of integrated safety management. These actions are tracked by an issues management system maintained by Group AA-1. AA-1 verifies the completion of actions and also maintains a file of objective evidence of completion. Changes to the implementation plan are managed by the ISM CCB. The Implementation Plan of March 2000 is reproduced here for convenience. A more recent version can be obtained from the ISM Program Office.

For some CIP action items closure is the establishment of institutional expectations, processes, or other ongoing functions. Where there is need for focused attention by LANL, UC, and the DOE, the Appendix F process of the UC contract (see Sec. 6.2.4 of the *ISM Description Document)* is used. Appendix F allows the creation of objectives and performance measures related to improvement or sustained performance in selected areas of ES&H.

Activity Description	Actions (ISM #)	Planned Finish	Actual Finish
WORK SMART STANDARDS—Erickson			
ISM# 14-Implement All LPRs/LIRs/Work Smart Std. Consistent with the contractual Work Smart Standards and based on the Laboratory's work and associated hazards, develop LPRs and LIRs and implement LIRs in phases.	**14—**Implement CCB approved list of LIRs essential to ISM and judged to have low implementation	24DEC98	12JAN99
	14A—Implement LIRs that are improvements to efficiency and elimination of redundancy (~30)	10 DEC99	02MAR00
	14B—Implement LIRs that are format conversions (~30)	15 DEC00	
AUTHORIZATION AGREEMENTS—McCorkle			
The Laboratory and DOE/LAAO have agreed on a format and content for authorization agreements (AAs).	**26—**For nuclear facilities, a facility AA is due 30 days after written approval by DOE of the facility's SAR.	Ongoing	Items 26-26SA closed out on 10DEC99
	26-A16—Submit Authorization Agreement for LANSCE (TA-53)	30 DAYS X	10DEC99
	26-A18—Submit AA for Beryllium Facility	30DAYS X	10DEC99
	26-SA— Submit self-assessment for ISM-26	30 DAYS X	10DEC99

Activity Description	Actions (ISM #)	Planned Finish	Actual Finish
PERIODIC REVIEW & REVISION OF ISM SYSTEMS—Thullen			
Revise ISM Description	**54—**Revise ISM Description	30JUN98	30JUN98
Review annually	**54A—**Review annually and revise as necessary	June each year	Ongoing
APPENDIX F ACTIONS—R. Burick			
A gap analysis of the LANL ISMS will be conducted during this performance period as part of continuous systems improvement. Gaps will have improvement actions developed and associated milestones will be integrated into the ISMS schedule. • System improvement plans, as approved, will become part of the ISM Program • Modifications will be made through the existing ISMS Change Control Board process • System improvements defined and integrated into ISMS IP	**55A—**Charter convened group	31JUL98	31JUL98
	55B—Assess gaps	01OCT98	13OCT98
	55C—Identify actions	26FEB99	17FEB99
	55D—Document in ISMS	30JUN99	01SEP99
	55E—Improve Process for funding ES&H requirements and activities		All items for 55E closed out on 14SEP99
	1. Convene team to identify problems in existing system	28JAN00	
	2. Prepare corrective actions to address problems	TBD	
	3. Create action plan with milestones	TBD	
	4. Add actions to ISM Continuous Improvement Plan	TBD	
	55F—Ensure ES&H (CLAUSE 6.7) flowdown to subcontractors		All items for 55F closed out on 10DEC99
	1. Convene representative team of UC and contractors to identify actions	29FEB00	
	2. Create action plan with milestones	TBD	
	3. Add actions to ISM Continuous Improvement Plan	TBD	
	55G—Determine OJT status and fix deficiencies		All items for 55G closed out on 02MAR00
	1. Convene team to assess status of OJT	31MAR00	
	2. Prepare corrective actions to address problems	TBD	
	3. Create action plan with milestones	TBD	
	4. Add actions to ISM Continuous Improvement Plan	TBD	

Activity Description	Actions (ISM #)	Planned Finish	Actual Finish
ENVIRONMENTAL ISSUES and MILESTONES—R. Burick			
ESH Management Plan	**60—**Prepare plan	01APR99	30APR99
Management of existing environmental issues	**60A—**Report to OWG status of actions to address existing environmental issues	17DEC99	30AUG99
AUTHORIZATION BASIS DOCUMENTS—R. Burick			
Preparation and maintenance of authorization basis documents requires action and diligence by both LANL and DOE	**62—**LANL and DOE/LAAO for authorization basis will present an agreed-upon priority listing for preparation, review, and approval of authorization basis documents. The CCB will request updates on the status.	30JUN99	26NOV99

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Disposition of Completed ISM Actions

Table 2, "Crosswalk of ISM Implementation Plan Activities," shows the relationship of completed ISM actions from the first ISM Continuous Improvement Plan to ongoing actions that sustain the execution of ISM. This document is complex, evolving, and therefore subject to change. Contact the ISM Program Office for the latest revision.

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Table 2: Crosswalk between ISM System Description and the Laboratory Standards and Requirements System

Section	Paragraph	Referenced document
1.2	5	LIR 201-00-04, LANL Incident Reporting Process
1.2	5	LIR 307-01-01, Safety Self Assessment
1.2	6	LIR 401-10-01, Stop Work and Restart
1.4	1	LIR 301-00-00, Managing Change Control of Laboratory Operations Standards and Requirements
1.4	1	LIR 301-00-01, Issuing and Managing Laboratory Operations Implementation Requirements and Guidance
2.0	1	LPR 300-00-00, Integrated Safety Management
2.1	2	LPR 404-00-00, Environmental Protection
2.2	-	LPR 300-00-00, Integrated Safety Management
2.3	-	LPR 300-00-00, Integrated Safety Management
2.3.3	2	LIR 230-01-02, Graded Approach for Facility Work
2.3.3	2	LIR 402-10-01, Hazard Analysis and Control for Facility Work
2.3.3	2	LIR 300-00-01, Safe Work Practices
2.3.5	1	LIR 230-03-01, Maintenance Skill of Craft
2.3.5	1	LIR 402-10-01, Hazard Analysis and Control for Facility Work
2.3.5	1	LIR 300-00-01, Safe Work Practices
2.3.5	2	LPR 240-01-0, Define Facility and Tenant Operations Limits and Configuration
2.3.5	2	LIG 240-01-10, Facility Safety Plan
2.3.5	3	LIR 300-00-01, Safe Work Practices
2.3.5	4	LIR 300-00-01, Safe Work Practices
2.3.5	4	LIR 250-02-02, Facility-Tenant Agreements
2.3.5	4	LIG 240-01-10, Facility Safety Plan
2.3.5	5	LIR 250-02-02, Facility-Tenant Agreements
2.3.5	7	LIR 300-00-01, Safe Work Practices
2.3.5	7	LIR 250-02-02, Facility-Tenant Agreements
2.3.5	7	LIR 230-03-01, Facility Management Work Control
2.3.5	7	LIG 240-01-10, Facility Safety Plan
3.3.1	6	LIR 201-00-04, LANL Incident Reporting Process
3.4.1	3	LIR 300-00-01, Safe Work Practices
3.4.1	3	LIR 230-03-01, Facility Management Work Control
3.4.2	2	LIR 307-01-03, Management Safety Walk-arounds
3.5.3	3	LIG 240-01-10, Facility Safety Plan
3.5.3	3	LIR 300-00-05, Facility Hazard Categorization

3.5.3	3	LIR 300-00-06, Nuclear Facility Safety Authorization
3.5.3	3	LIR 300-00-07, Non-Nuclear Facility Safety Authorization
3.5.3	4 and 5	LIR 240-01-03, Authorization Agreements
3.5.3	6	LIR 250-02-02, Facility-Tenant Agreements
3.5.3	10	LIR 250-02-02, Facility-Tenant Agreements
3.5.3	10	LIG 240-01-10, Facility Safety Plan
3.5.3	11	LIR 250-02-02, Facility-Tenant Agreements
3.5.3	11	LIG 240-01-10, Facility Safety Plan
4.0	3	LIR 300-00-04, Laboratory Training
4.1	-	LIR 300-00-05, Facility Hazard Categorization
4.1	-	LIR 300-00-06, Nuclear Facility Safety Authorization
4.1	-	LIR 300-00-07, Non-Nuclear Facility Safety Authorization
4.3	1	LIR 208-01-01, Facility Management Training and Qualification Program
4.4	1	LIR 300-00-04, Laboratory Training
4.5	-	LIR 300-00-04, Laboratory Training
5.0	-	LPR 300-00-00, Integrated Safety Management
5.0	11	LIR 201-00-04, LANL Incident Reporting Process
5.0	11	LIR 307-01-03, Management Safety Walk-arounds
5.0	11	LIR 307-01-04, Safety Concern Program
5.3.2	2	LIR 301-00-00, Managing Change Control of Laboratory Operations Standards and Requirements
5.3.2	3	LPR 308-00-00, Quality
5.3.2	7	LIR 300-00-01, Safe Work Practices
5.3.2	7	LIR 230-03-01, Facility Management of Work Control
5.3.3	1	LIR 301-00-01, Issuing and Managing Laboratory Operations Implementation Requirements and Guidance
5.3.3	1	LIG 302-100-03, Guide for Developing Laboratory Operations Implementation Requirements and Guidance
5.3.3	1	LIR 301-00-00, Managing Change Control of Laboratory Operations Standards and Requirements
5.4	1	LIR 230-03-01, Maintenance Skill of Craft
5.5.1	2	LIR 250-02-02, Facility-Tenant Agreements
5.5.2	1	LIR 250-02-02, Facility-Tenant Agreements LIG 250-02-02, Facility-Tenant Agreements
5.5.3	1	LIG 240-01-01, Facility Safety Plan
5.5.6	1	LIR 300-00-05, Facility Hazard Categorization LIR 300-00-06, Nuclear Facility Safety Authorization LIR 300-00-07, Non-Nuclear Facility Safety Authorization LIR 240-01-03, Authorization Agreements
5.6.2	1 and 3	LPR 308-00-00, Quality

5.6.4	1	LIR 301-00-01, Issuing and Managing Laboratory Operations Implementation Requirements and Guidance
5.6.6	1	LIR 301-00-02, Exception and Variances to Laboratory Operations Requirements
5.7	1	LIR 301-00-01, Issuing and Managing Laboratory Operations Implementation Requirements and Guidance
5.7	2	LIR 300-00-01, Safe Work Practices
6.2	2	LIR 307-01-01, Safety Self Assessment
6.2	2	LIR 307-01-02, Internal Independent Assessment
6.2	2	LIR 307-01-03, Management Safety Walk-arounds
6.2.1	1	LIR 307-01-03, Management Safety Walk-arounds
6.2.4	2	LIR 307-01-01, Safety Self Assessment
6.3.2	1	LIR 307-01-04, Safety Concern Program